

Exhibit 101

Arch I. "Chip" Carson, M.D., Ph.D.

Page 1

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF NEW JERSEY

-----)
IN RE JOHNSON & JOHNSON)
TALCUM POWDER PRODUCTS)
MARKETING, SALES) MDL NO.
PRACTICES, AND PRODUCTS) 16-2738 (FLW) (LHG)
LIABILITY LITIGATION)
)
-----)
)
THIS DOCUMENT RELATES TO)
ALL CASES)
)

— — —
Saturday, January 19, 2019
— — —

Videotaped Deposition of ARCH I. "CHIP"
CARSON, M.D., Ph.D., held at the Marriott
Houston Medical Center, 6580 Fannin Street,
Houston, Texas, commencing at 9:02 a.m., on
the above date, before Michael E. Miller,
Fellow of the Academy of Professional
Reporters, Certified Court Reporter,
Registered Diplomate Reporter, Certified
Realtime Reporter and Notary Public.

— — —
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Arch I. "Chip" Carson, M.D., Ph.D.

Page 2	Page 4
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Page 3	Page 5
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Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 6</p> <p>1 DEPOSITION EXHIBITS</p> <p>2</p> <p>3 Exhibit 15 Handwritten List of 124</p> <p>4 Materials Reviewed by</p> <p>5 Dr. Carson</p> <p>6 Exhibit 16 1979 Chappell et al 130</p> <p>7 Publication</p> <p>8 Exhibit 17 2011 Reid et al Publication 159</p> <p>9 Exhibit 18 2011 Camargo et al 163</p> <p>10 Publication</p> <p>11 Exhibit 19 2013 Terry et al 192</p> <p>12 Publication</p> <p>13 Exhibit 20 2016 Cramer et al 195</p> <p>14 Publication</p> <p>15 Exhibit 21 IARC Classification Groups 225</p> <p>16 Document</p> <p>17 Exhibit 22 2017 Berge et al 243</p> <p>18 Publication</p> <p>19 Exhibit 23 2007 Langseth et al 247</p> <p>20 Publication</p> <p>21 Exhibit 24 2016 Schildkraut et al 271</p> <p>22 Publication</p> <p>23 Exhibit 25 Excerpt from IARC 289</p> <p>24 Monograph 93</p>	<p style="text-align: right;">Page 8</p> <p>1 PROCEEDINGS</p> <p>2 (January 19, 2019 at 9:02 a m.)</p> <p>3 THE VIDEOGRAPHER: We are now</p> <p>4 on the record. My name is Doug</p> <p>5 Overstreet. I'm the videographer for</p> <p>6 Golkow Litigation Services. Today is</p> <p>7 January 19th, 2019. The time is</p> <p>8 9:02 a m.</p> <p>9 This video deposition is being</p> <p>10 held in Houston, Texas in the matter</p> <p>11 of Talcum Powder Litigation MDL</p> <p>12 No. 2738.</p> <p>13 The deponent is Dr. Chip</p> <p>14 Carson.</p> <p>15 Will counsel please identify</p> <p>16 themselves for the record.</p> <p>17 MS. O'DELL: Leigh O'Dell,</p> <p>18 Beasley Allen, for the plaintiffs.</p> <p>19 DR. THOMPSON: Margaret</p> <p>20 Thompson, Beasley Allen, for the</p> <p>21 plaintiffs.</p> <p>22 MS. KLEVORN: Amanda Klevorn,</p> <p>23 Burns Charest, for the plaintiffs.</p> <p>24 MR. ZELLERS: Michael Zellers</p>
<p style="text-align: right;">Page 7</p> <p>1 REFERENCED EXHIBITS</p> <p>2</p> <p>3 NUMBER PAGE</p> <p>4 Exhibit 148</p> <p>5 Hopkins-28</p> <p>6 Exhibit 148</p> <p>7 Pier-47</p> <p>8 Exhibit 28</p> <p>9 P-346</p> <p>10 --o0o--</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p>	<p style="text-align: right;">Page 9</p> <p>1 for the Johnson & Johnson defendants.</p> <p>2 MS. McBETH: Katherine McBeth,</p> <p>3 Drinker Biddle & Reath, for the</p> <p>4 Johnson & Johnson defendants as well.</p> <p>5 MS. BOCKUS: Jane Bockus for</p> <p>6 Imerys.</p> <p>7 MR. DONATH: Jonathan Donath</p> <p>8 from Coughlin Duffy for Imerys.</p> <p>9 MS. APPEL: Renée Appel from</p> <p>10 Seyfarth Shaw for Personal Care</p> <p>11 Products.</p> <p>12 MS. TINSLEY: Caroline Tinsley,</p> <p>13 Tucker Ellis, for PTI Union, LLC and</p> <p>14 PTI Royston, LLC.</p> <p>15 THE VIDEOGRAPHER: The court</p> <p>16 reporter today is Mr. Mike Miller, and</p> <p>17 he will now swear in the witness.</p> <p>18 ARCH I. "CHIP" CARSON, M.D., Ph.D.,</p> <p>19 having been duly sworn,</p> <p>20 testified as follows:</p> <p>21 EXAMINATION</p> <p>22 BY MR. ZELLERS:</p> <p>23 Q. Can you state your name,</p> <p>24 please.</p>

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 10</p> <p>1 A. Arch Carson.</p> <p>2 Q. You are a physician; is that</p> <p>3 right?</p> <p>4 A. I am.</p> <p>5 Q. A medical toxicologist?</p> <p>6 A. Yes.</p> <p>7 Q. We are here today to take your</p> <p>8 deposition in the talc MDL litigation</p> <p>9 proceedings; is that right?</p> <p>10 A. As far as I know, yes.</p> <p>11 Q. You are an expert witness for</p> <p>12 the plaintiffs in that litigation; is that</p> <p>13 right?</p> <p>14 A. Yes.</p> <p>15 Q. Did you receive a notice of</p> <p>16 deposition, which we'll mark as Exhibit 1, to</p> <p>17 appear here today?</p> <p>18 (Carson Deposition Exhibit 1</p> <p>19 marked.)</p> <p>20 A. Yes, I received a copy of this</p> <p>21 document.</p> <p>22 MS. O'DELL: And, Michael, just</p> <p>23 for the record, we just reassert all</p> <p>24 our previously served objections to</p>	<p style="text-align: right;">Page 12</p> <p>1 BY MR. ZELLERS:</p> <p>2 Q. As best we can, let me finish</p> <p>3 my question before you start to give your</p> <p>4 answer. I'll do the same and allow you to</p> <p>5 finish your answer before I ask you another</p> <p>6 question so our court reporter can take down</p> <p>7 what each of us say.</p> <p>8 Can you do that?</p> <p>9 A. Yes.</p> <p>10 Q. In response to the notice of</p> <p>11 deposition, which we've marked as Exhibit 1,</p> <p>12 have you brought with you certain documents</p> <p>13 here today?</p> <p>14 A. I have a collection of</p> <p>15 documents that in part respond to these</p> <p>16 requests, yes.</p> <p>17 Q. Do you have any documents in</p> <p>18 your possession that are responsive to the</p> <p>19 notice of deposition, Exhibit 1, that you</p> <p>20 have not brought here today?</p> <p>21 A. I would have to go through</p> <p>22 these things one by one, but --</p> <p>23 Q. You didn't do that before we</p> <p>24 came here today?</p>
<p style="text-align: right;">Page 11</p> <p>1 the notice.</p> <p>2 MR. ZELLERS: Thank you.</p> <p>3 BY MR. ZELLERS:</p> <p>4 Q. You have given deposition</p> <p>5 testimony in the past; is that right?</p> <p>6 A. I have.</p> <p>7 Q. On how many occasions?</p> <p>8 A. Probably 30, 35.</p> <p>9 Q. You are familiar with the</p> <p>10 procedures we're going to follow today?</p> <p>11 A. More or less, I think.</p> <p>12 Q. If at any time I ask you a</p> <p>13 question and you don't understand it, tell me</p> <p>14 you don't understand it and I'll repeat it or</p> <p>15 rephrase it to try to make it clear to you.</p> <p>16 Can you do that?</p> <p>17 A. Yes.</p> <p>18 Q. If you answer a question that I</p> <p>19 ask or that any of the counsel ask, we're</p> <p>20 going to assume that you understood it; is</p> <p>21 that fair?</p> <p>22 MS. O'DELL: Object to form.</p> <p>23 A. That's fair.</p> <p>24 ///</p>	<p style="text-align: right;">Page 13</p> <p>1 A. I did, but the plaintiffs'</p> <p>2 attorneys --</p> <p>3 MS. O'DELL: Let me just stop</p> <p>4 you, Dr. Carson, just because</p> <p>5 discussing what we've discussed is not</p> <p>6 within the purview of this deposition.</p> <p>7 That's privileged. Let me just say --</p> <p>8 THE WITNESS: All right.</p> <p>9 MS. O'DELL: -- Dr. Carson, in</p> <p>10 response to the notice, has brought</p> <p>11 with him copies of the cited materials</p> <p>12 in his report, and that's in the</p> <p>13 binder that is to his left.</p> <p>14 He's brought with him copies of</p> <p>15 certain documents that were listed on</p> <p>16 his materials considered list. He</p> <p>17 doesn't have a physical copy of</p> <p>18 everything on his materials considered</p> <p>19 list.</p> <p>20 I brought today a thumb drive</p> <p>21 that has a copy of all the items on</p> <p>22 his materials considered list. If you</p> <p>23 would like access to that, it's</p> <p>24 available to you.</p>

4 (Pages 10 to 13)

Arch I. "Chip" Carson, M.D., Ph.D.

Page 14	Page 16
<p>1 And then in addition, he has 2 brought some additional materials that 3 he has reviewed since the service of 4 his report. 5 The only other item, as I 6 recall, on the notice of deposition 7 request for documents that has not 8 been brought to the deposition is 9 copies of invoices and Dr. Carson has 10 not sent us an invoice. That's why we 11 don't have a copy. 12 So to try to short-circuit 13 this, just to make sure since we made 14 decisions about what's produced and 15 what's not, I'll just say all that for 16 the record. And if you'd like that, 17 you're welcome to it. 18 BY MR. ZELLERS: 19 Q. Dr. Carson, you heard 20 Ms. O'Dell describe what you brought here 21 today. Is all of that accurate? 22 A. It is. 23 Q. Are you aware of there being 24 any documents or materials that are</p>	<p>1 Q. I'll ask you about the 2 attachments in a moment. 3 Does this report, 4 Deposition Exhibit 2, contain all of the 5 opinions that you intend to offer at any 6 trial or hearing of this matter? 7 A. In general, it contains all of 8 my opinions. I expect to expand on those 9 opinions possibly in this deposition or in 10 the future. 11 Q. Today's my opportunity to ask 12 you what your opinions are in this matter. 13 As of today, are the opinions 14 that you expressed to us set forth at any 15 trial or hearing in this matter, are they 16 contained in your report, Exhibit 2? 17 A. I have seen information that 18 has become available recently that I did not 19 have at that time this report was finalized, 20 and I have modified my opinions very slightly 21 as a result of that information. 22 Q. How have you modified your 23 opinions? 24 A. My opinions have essentially</p>
Page 15	Page 17
<p>1 responsive to the deposition notice that you 2 have not brought with you here today? 3 A. No. 4 Q. I'm trying to understand what 5 counsel for plaintiffs, Ms. O'Dell, has said, 6 so let me ask you some questions. 7 You have brought with you today 8 in a binder some of the cited materials in 9 your report; is that right? 10 A. Yes. This is intended to be a 11 complete set of the cited references, with 12 one exception. 13 Q. When you say cited 14 references -- 15 A. From my report. 16 Q. Your expert report, we will 17 mark as Exhibit 2. 18 (Carson Deposition Exhibit 2 19 marked.) 20 BY MR. ZELLERS: 21 Q. Is Deposition Exhibit 2 your 22 report in this matter? 23 A. It is. It also has 24 attachments.</p>	<p>1 been strengthened as they relate to the 2 causation question between perineal talcum 3 powder use and the occurrence of ovarian 4 cancers. 5 Q. Other than you believing that 6 your opinions are strengthened with respect 7 to the association between perineal talcum 8 powder use and ovarian cancer, have your 9 opinions changed at all since you prepared 10 your report, Exhibit 2? 11 A. No. 12 Q. Are there any new or additional 13 opinions as of today that you expect to 14 testify to at trial or any hearing of this 15 matter other than your report, Exhibit 2, and 16 as you have qualified that report by stating 17 that your opinions on association are 18 stronger today? 19 A. No. 20 MS. O'DELL: Object to the 21 form. 22 BY MR. ZELLERS: 23 Q. Okay. Your report has a list 24 of references that begin on page 11.</p>

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 18</p> <p>1 Do you see that?</p> <p>2 A. Yes.</p> <p>3 Q. What are the references? What</p> <p>4 do they relate to? And by that, I mean --</p> <p>5 I'm just trying to understand what this list</p> <p>6 is.</p> <p>7 A. This is a list of references</p> <p>8 from which I gleaned information that were</p> <p>9 important to my forming opinions regarding</p> <p>10 the question that was given to me, and they</p> <p>11 contribute to pieces of the report in various</p> <p>12 ways.</p> <p>13 They don't represent a complete</p> <p>14 review that I made in preparing my report,</p> <p>15 but all are important in some way in terms of</p> <p>16 coming to my conclusions.</p> <p>17 Q. Are the references that you</p> <p>18 list in your report from page 11 up and</p> <p>19 through page 16, are those the materials that</p> <p>20 you are relying on in terms of your opinions</p> <p>21 that you're expressing in your report?</p> <p>22 MS. O'DELL: Objection to form.</p> <p>23 A. Yes.</p> <p>24 ///</p>	<p style="text-align: right;">Page 20</p> <p>1 I produced a report that I</p> <p>2 thought was responsive to the question that</p> <p>3 was given to me by the plaintiffs' attorneys,</p> <p>4 and within that report I felt it necessary to</p> <p>5 cite specific key references that contributed</p> <p>6 to items in that report.</p> <p>7 BY MR. ZELLERS:</p> <p>8 Q. And those are --</p> <p>9 MS. O'DELL: Excuse me, sir.</p> <p>10 Are you finished, Dr. Carson?</p> <p>11 THE WITNESS: Yes.</p> <p>12 MS. O'DELL: Okay. Sorry.</p> <p>13 BY MR. ZELLERS:</p> <p>14 Q. Those are the items that you've</p> <p>15 listed under References; is that right?</p> <p>16 A. Yes.</p> <p>17 Q. Literature are other materials</p> <p>18 that you have reviewed but didn't rise to the</p> <p>19 level of you citing them as a reference for</p> <p>20 your report, correct?</p> <p>21 A. That is correct, but they do</p> <p>22 contribute information that I utilize in</p> <p>23 terms of the whole to formulate my opinions.</p> <p>24 Q. Let me mark several of the</p>
<p style="text-align: right;">Page 19</p> <p>1 BY MR. ZELLERS:</p> <p>2 Q. What, then, is the difference</p> <p>3 between the references to your report and</p> <p>4 Exhibit B, which has a caption, Literature?</p> <p>5 A. The Exhibit B represents a</p> <p>6 larger set of documents, including scientific</p> <p>7 literature, technical reports, and so forth</p> <p>8 that I reviewed in preparation of my report</p> <p>9 and the formation of my opinions; but they</p> <p>10 did not contain information that I felt</p> <p>11 necessary to cite in my report.</p> <p>12 Q. The literature that you cite to</p> <p>13 as Appendix B of your report are materials</p> <p>14 that you reviewed but are not the materials</p> <p>15 that you're specifically relying on. The</p> <p>16 materials that you're specifically relying on</p> <p>17 are set forth in your references list; is</p> <p>18 that right?</p> <p>19 MS. O'DELL: Excuse me. Object</p> <p>20 to the form, misstates his testimony.</p> <p>21 A. My opinions are based on my</p> <p>22 total review of the literature as well as my</p> <p>23 training, my professional experience and many</p> <p>24 other factors.</p>	<p style="text-align: right;">Page 21</p> <p>1 attachments to your report as separate</p> <p>2 exhibits.</p> <p>3 (Carson Deposition Exhibit 3</p> <p>4 marked.)</p> <p>5 BY MR. ZELLERS:</p> <p>6 Q. Exhibit 3 is your curriculum</p> <p>7 vitae that was attached to your report; is</p> <p>8 that right?</p> <p>9 A. Yes.</p> <p>10 (Carson Deposition Exhibit 4</p> <p>11 marked.)</p> <p>12 BY MR. ZELLERS:</p> <p>13 Q. Exhibit 4 is a copy of your</p> <p>14 literature list that we just discussed that</p> <p>15 is in your report; is that right?</p> <p>16 A. Yes.</p> <p>17 MS. O'DELL: Thank you.</p> <p>18 BY MR. ZELLERS:</p> <p>19 Q. The one difference with</p> <p>20 Exhibit 4, your literature list that's</p> <p>21 attached to your report as Appendix B is not</p> <p>22 numbered. I've gone ahead and numbered the</p> <p>23 pages on Exhibit 4, your literature list, in</p> <p>24 case we want to refer to a specific page.</p>

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 22</p> <p>1 Today, when I refer to 2 products, talc products, baby powder or 3 Shower to Shower, I'm referring to the baby 4 powder product manufactured by Johnson & 5 Johnson Consumer Products Inc. and the Shower 6 to Shower product formerly manufactured by 7 Johnson & Johnson Consumer Products Inc. 8 Do you understand that? 9 A. Yes. 10 Q. Is your report, Exhibit 2, 11 accurate? 12 A. I believe so. 13 Q. Do you believe it's complete? 14 A. In terms of its focus, yes. 15 Q. What do you mean in terms of 16 its focus? 17 A. It covers specific aspects of a 18 larger question, and regarding those specific 19 aspects, I believe it is complete. 20 Q. It covers the aspects of the 21 question that you intend to offer opinions 22 on, correct? 23 A. That is correct. 24 Q. What is the question that was</p>	<p style="text-align: right;">Page 24</p> <p>1 binder of materials; is that right? 2 A. Yes. 3 Q. The binder of materials, did 4 you prepare that, or was it prepared for you? 5 A. Well, I uploaded documents to a 6 share file, and the plaintiffs' attorneys 7 were kind enough to print those for me and 8 assemble them in the binder. 9 Q. In addition, you have brought 10 with you a stack of eight or so additional 11 references that you have on the table in 12 front of you; is that right? 13 A. Yes. 14 Q. Are those materials that were 15 cited either as references in your report or 16 in the literature section of your report? 17 A. I think they're all included in 18 one or the other of those lists. 19 Q. Your testimony under oath is 20 that all of the additional materials you 21 brought here today are referred to either in 22 your reference list, which is -- begins at 23 page 11 of your report, or your literature 24 list, which we've marked as Exhibit 4 and is</p>
<p style="text-align: right;">Page 23</p> <p>1 given to you by counsel for plaintiffs in 2 this litigation? 3 A. The question is do the -- does 4 the habitual use of talcum powder products 5 cause ovarian cancer. 6 Q. Were you given any other 7 questions to answer or opine on in this 8 litigation? 9 A. Not specifically. 10 Q. What do you understand habitual 11 use of talcum powder to refer to? 12 A. It means routine use, periodic 13 use. 14 Q. Over any period of time? 15 A. Over an extended period of 16 time. 17 Q. What is an extended period of 18 time? 19 A. Months or years. 20 Q. Any other definition that you 21 have of habitual use? 22 A. No. 23 Q. Today, in response to the 24 notice of deposition, you did bring the</p>	<p style="text-align: right;">Page 25</p> <p>1 Exhibit B to your report; is that right? 2 MS. O'DELL: Objection to the 3 form. 4 Go ahead. 5 A. There are a couple of new 6 articles here that were not available at the 7 time that I submitted my report, and I 8 believe the literature list was also created. 9 BY MR. ZELLERS: 10 Q. Were those new materials 11 provided to you by plaintiffs' counsel or are 12 those materials that you did some type of 13 literature search and found? 14 A. One of them was provided to me 15 by plaintiffs' counsel, but I was aware that 16 it was coming. And -- actually, two of them 17 were provided by plaintiffs' counsel. 18 Q. All right. The two additional 19 documents that were provided to you by 20 plaintiffs' counsel, can you show those to 21 me? 22 A. Okay. One is the Longo report. 23 Q. We will mark as 24 Deposition Exhibit 5 the Longo report dated</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 26	Page 28
<p>1 January 15th of 2009 [sic]. 2 (Carson Deposition Exhibit 5 3 marked.) 4 A. The other is the recent 5 Fletcher, et al article. 6 (Carson Deposition Exhibit 6 7 marked.) 8 BY MR. ZELLERS: 9 Q. The Fletcher article dated 10 January 3rd of 2019 we'll mark as Exhibit 6. 11 This is an article from Reproductive 12 Sciences; is that right? 13 A. Yes. And I actually have a 14 third. 15 Q. All right. You have a third 16 article that was provided to you by 17 plaintiffs' counsel? 18 A. Yes. 19 (Carson Deposition Exhibit 7 20 marked.) 21 BY MR. ZELLERS: 22 Q. Let's mark that as 23 Deposition Exhibit 7. Can you tell us what 24 article that is?</p>	<p>1 Ph.D.; is that right? 2 A. Yes. 3 Q. What additional articles have 4 you brought here with you today separate and 5 apart from your binder of materials? 6 A. There's a copy of the IARC 7 monographs preamble. 8 Q. For what purpose did you bring 9 that article? 10 A. This discusses the general 11 process that IARC uses in approaching a 12 putative carcinogenic material. 13 Q. That has previously been marked 14 as Plaintiff Exhibit P-346 in another 15 proceeding; is that right? 16 A. I don't know. 17 Q. Well, the document we're 18 looking at has that exhibit sticker on it; is 19 that right? 20 A. It does. 21 Q. What else have you brought here 22 with you today? 23 A. This is an article from 24 The Lancet from 1952 titled Value of Modified</p>
Page 27	Page 29
<p>1 A. This is a meta-analysis. 2 It's -- the title is Systematic Review and 3 Meta-Analysis of the Association Between 4 Perineal Use of Talc and Risk of Ovarian 5 Cancer. The lead author is Mohamed Taher. 6 Q. The Taher paper we have marked 7 as Exhibit 7; is that right? 8 A. Yes. 9 Q. This is something that you were 10 provided by plaintiffs' counsel; is that 11 right? 12 A. Yes. 13 Q. Exhibit 6, Reproductive 14 Sciences, are you familiar with that journal? 15 A. I'm aware that it exists. 16 Q. Do you review that journal on a 17 regular basis as a part of your clinical and 18 research activities? 19 A. No, I don't. 20 Q. Is Reproductive Sciences a 21 peer-reviewed journal? 22 A. I believe it is. 23 Q. The Exhibit 6 has as a 24 corresponding author, Dr. Saed, S-A-E-D, a</p>	<p>1 Starch as a Substitute for Talc, and the 2 first author is J.D.P. Graham. 3 Q. Why did you bring that article? 4 A. This is an older article that 5 discusses the suitability of substituting 6 cornstarch materials for talc due to 7 perceived issues with talc. 8 Q. Is this an article that you had 9 cited previously, either in your references 10 or your list of literature? 11 A. I did not cite it in my report. 12 I don't know -- I don't recall if it's in the 13 literature list or not. 14 (Carson Deposition Exhibit 8 15 marked.) 16 BY MR. ZELLERS: 17 Q. Why did you decide to bring 18 that with you here today? 19 A. It is in the literature list. 20 I ran across it last night, and 21 I thought I might need to refer to it during 22 the deposition. 23 Q. What other documents or 24 materials have you brought other than your</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 30	Page 32
<p>1 binder of materials?</p> <p>2 A. I have here a copy of the</p> <p>3 recent Canadian position on the safety of</p> <p>4 talcum powder and its relationship to ovarian</p> <p>5 cancer.</p> <p>6 Q. When did you review that</p> <p>7 document?</p> <p>8 A. A couple weeks ago, I think.</p> <p>9 Q. Is that a document that you</p> <p>10 were provided by plaintiffs' counsel?</p> <p>11 A. It was.</p> <p>12 Q. Can I see the document, please?</p> <p>13 We'll mark the draft screening assessment</p> <p>14 from Health Canada dated December 18th of</p> <p>15 2018 as Exhibit 9.</p> <p>16 (Carson Deposition Exhibit 9</p> <p>17 marked.)</p> <p>18 BY MR. ZELLERS:</p> <p>19 Q. Any other documents?</p> <p>20 A. I have a copy of the letter</p> <p>21 from the FDA from April 1st, 2014 responding</p> <p>22 to positions -- petitions for labeling.</p> <p>23 Q. This is a letter that has a</p> <p>24 stamp on it on the first page, April 1st,</p>	<p>1 talcum powder and ovarian cancer, is</p> <p>2 something that you undertook when you were</p> <p>3 retained by plaintiffs' counsel and asked to</p> <p>4 address the question they gave to you?</p> <p>5 A. Yes, it is.</p> <p>6 Q. We will mark the article by</p> <p>7 Blount as Exhibit 11.</p> <p>8 (Carson Deposition Exhibit 11</p> <p>9 marked.)</p> <p>10 BY MR. ZELLERS:</p> <p>11 Q. And you have one more; is that</p> <p>12 right?</p> <p>13 A. Yes, one more, which is -- this</p> <p>14 is an article from the American Journal of</p> <p>15 Obstetrics and Gynecology from 1974 titled</p> <p>16 The Ovarian Mesothelioma. It's authored by</p> <p>17 Parmley and Woodruff.</p> <p>18 Q. We'll mark that as Exhibit 12.</p> <p>19 (Carson Deposition Exhibit 12</p> <p>20 marked.)</p> <p>21 BY MR. ZELLERS:</p> <p>22 Q. Exhibit 12, is this an article</p> <p>23 that was cited previously by you in either</p> <p>24 your references or your literature list?</p>
Page 31	Page 33
<p>1 2014, from -- or strike that -- to</p> <p>2 Dr. Epstein from the FDA; is that right?</p> <p>3 A. Yes.</p> <p>4 Q. Let's mark that as Exhibit 10.</p> <p>5 (Carson Deposition Exhibit 10</p> <p>6 marked.)</p> <p>7 BY MR. ZELLERS:</p> <p>8 Q. What else?</p> <p>9 A. I have an article authored by</p> <p>10 A.M. Blount which is titled Amphibole Content</p> <p>11 of Cosmetic and Pharmaceutical Talcs that was</p> <p>12 published in Environmental Health</p> <p>13 Perspectives in 1991.</p> <p>14 Q. Is that a journal that you</p> <p>15 review on a regular basis as part of either</p> <p>16 your clinical practice or your research</p> <p>17 activities?</p> <p>18 A. That one I do look at pretty</p> <p>19 much.</p> <p>20 Q. Is this an article you were</p> <p>21 aware of back in 1991?</p> <p>22 A. No. At least I don't recall.</p> <p>23 Q. Is it fair that your review of</p> <p>24 this literature, the literature relating to</p>	<p>1 A. Yes.</p> <p>2 Q. For what -- strike that.</p> <p>3 Is this a document that you</p> <p>4 chose to bring today or were you provided it</p> <p>5 by plaintiffs' counsel?</p> <p>6 A. This is another one I ran</p> <p>7 across last night and decided to bring along</p> <p>8 to the depo.</p> <p>9 Q. Same questions with respect to</p> <p>10 the Blount article, Exhibit 11: Is this an</p> <p>11 article you cite in your references or</p> <p>12 literature?</p> <p>13 A. In the literature, yes.</p> <p>14 Q. For what purpose have you</p> <p>15 brought this with you today?</p> <p>16 A. I thought I might want to refer</p> <p>17 to it in response to questions here.</p> <p>18 Q. Exhibit 10, the letter from the</p> <p>19 FDA to Dr. Epstein, April of 2014, for what</p> <p>20 purpose have you brought that here with you</p> <p>21 today?</p> <p>22 A. I thought I might want to refer</p> <p>23 to it in response to questioning.</p> <p>24 Q. The documents that you have</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 34	Page 36
<p>1 brought here with you today are documents 2 that you wanted to have available to try to 3 respond to the questions that I may ask you? 4 A. Yes. 5 Q. These documents you all 6 believe -- strike that. 7 The documents that you've 8 identified and you've brought with you -- 9 have brought with you today, you believe 10 those are supportive of the opinions that you 11 are rendering in this matter; is that right? 12 A. Yes. 13 Q. The documents on your 14 literature list, what we have marked as 15 Exhibit 4, are those documents that were 16 provided to you by plaintiffs' counsel? 17 A. Some were. 18 Q. The documents on this list that 19 were not provided by plaintiffs' counsel, did 20 you find those through a literature search? 21 A. Yes. 22 Q. Are you able to distinguish for 23 us which documents on your literature list, 24 Exhibit 4, came from plaintiffs' counsel and</p>	<p>1 wouldn't be able to tell you for sure. I'm 2 sure I ran across these in my own literature 3 search. 4 Q. Deposition Exhibit 13, we will 5 mark the thumb drive that plaintiffs' counsel 6 has brought here today. 7 (Carson Deposition Exhibit 13 8 marked.) 9 BY MR. ZELLERS: 10 Q. Do you, Dr. Carson, have an 11 understanding of what's on the thumb drive 12 we've marked as Exhibit 13? 13 A. My understanding is this is 14 copies of the documents on the literature 15 list. 16 Q. When were you first retained by 17 anyone regarding the talc/ovarian cancer 18 litigation? 19 A. In October of 2018. 20 Q. Who contacted you? 21 A. I was contacted by an attorney 22 named Russ Abney. 23 Q. Who is Mr. Abney, if you know? 24 A. Mr. Abney is a lawyer who used</p>
Page 35	Page 37
<p>1 which items on the literature list you came 2 up with? 3 A. To some extent. 4 Q. So if we went through item by 5 item, you believe you could distinguish 6 between what was provided to you by 7 plaintiffs and what you found on your own? 8 A. For some, but not all of them. 9 Q. Have you reviewed all of the 10 materials that are listed on your literature 11 list? 12 A. I have reviewed all of them, 13 yes. 14 Q. Have you reviewed all of the 15 materials that are on your reference list? 16 A. Yes. 17 Q. The materials on your reference 18 list, is it the same that some were provided 19 to you by plaintiffs' counsel and some you 20 found on your own? 21 A. I think there may be one or two 22 references that I didn't have before I saw 23 them in the share file that may have been 24 provided by plaintiffs' counsel, but I</p>	<p>1 to work in the Houston area and with whom I 2 had some dealings years ago; and since that 3 time he has become involved in this talc 4 litigation in some way, was aware of me as a 5 potential expert witness, and contacted me 6 regarding my interest and availability. 7 Q. What matters have you worked on 8 with Mr. Abney in the past? 9 A. I think it would have been back 10 in the 1990s, and I frankly don't recall what 11 cases we worked on, but there were one or 12 maybe two cases. 13 Q. When in October of 2018 were 14 you contacted by Mr. Abney? 15 MS. O'DELL: Object to the 16 form. 17 A. I believe it was either the 18 14th or 15th of October. 19 BY MR. ZELLERS: 20 Q. How do you remember with that 21 precision? 22 A. I have an e-mail that relates 23 to a phone call which was our initial 24 contact.</p>

10 (Pages 34 to 37)

Arch I. "Chip" Carson, M.D., Ph.D.

Page 38	Page 40
<p>1 Q. Mr. Abney at some point asked</p> <p>2 you to address the question that you told us</p> <p>3 before: Does the habitual use of talcum</p> <p>4 powder cause ovarian cancer?</p> <p>5 Is that right?</p> <p>6 MS. O'DELL: Object to the</p> <p>7 form.</p> <p>8 A. Well, he talked to me generally</p> <p>9 about the case that was proceeding, and I</p> <p>10 discussed with him what my understanding of</p> <p>11 those things was and what the kind of</p> <p>12 opinions I would be able to render would be.</p> <p>13 And he suggested that he set up a meeting</p> <p>14 between me and members of plaintiffs'</p> <p>15 counsel.</p> <p>16 BY MR. ZELLERS:</p> <p>17 Q. When Mr. Abney called you</p> <p>18 middle of October of 2018, talcum powder and</p> <p>19 any relationship or association that it may</p> <p>20 have to ovarian cancer had not been a focus</p> <p>21 of your research or study; is that right?</p> <p>22 A. That's right.</p> <p>23 Q. It had not been a part of your</p> <p>24 clinical practice, right?</p>	<p>1 doing a review? What does that mean?</p> <p>2 A. Well, I felt that I was hired</p> <p>3 as a witness at that point and that's when I</p> <p>4 would begin my billable hours on this case.</p> <p>5 Q. When was that? Sometime in</p> <p>6 later October of -- late October of 2018?</p> <p>7 A. It was within a few days after</p> <p>8 our first meeting, still in October.</p> <p>9 Q. What did you do to answer the</p> <p>10 question? What was your methodology?</p> <p>11 A. Well, initially I decided to do</p> <p>12 a general literature search on the question</p> <p>13 to see what research had been performed, what</p> <p>14 reports had been written, what the quality of</p> <p>15 that research was.</p> <p>16 Q. When did you start that?</p> <p>17 A. Immediately. I was curious.</p> <p>18 I began to assemble the</p> <p>19 available literature and review it on a</p> <p>20 piecemeal basis through the subsequent time</p> <p>21 period; the next couple of weeks I reviewed a</p> <p>22 lot of it.</p> <p>23 Q. What did you search for when</p> <p>24 you did this general literature search?</p>
Page 39	Page 41
<p>1 A. That's correct.</p> <p>2 Q. When did you meet with the</p> <p>3 larger group of plaintiffs' counsel?</p> <p>4 A. I believe we had a telephone</p> <p>5 meeting on the 16th of October. I'm not</p> <p>6 sure. I have to --</p> <p>7 Q. That's -- right now I just want</p> <p>8 estimates.</p> <p>9 A. Okay.</p> <p>10 Q. And so I don't -- as long as</p> <p>11 you're reasonably comfortable that it was in</p> <p>12 that time frame.</p> <p>13 A. It was mid October.</p> <p>14 Q. That's fine.</p> <p>15 When were you asked the</p> <p>16 question that the plaintiffs' lawyers wanted</p> <p>17 you to try to answer in this litigation?</p> <p>18 A. Well, after the meeting we</p> <p>19 parted ways and then made contact again a few</p> <p>20 days later, and I was told that they were</p> <p>21 interested in me going ahead and doing a</p> <p>22 review and starting to establish opinions.</p> <p>23 Q. What do you mean by they</p> <p>24 authorized you or were comfortable with you</p>	<p>1 A. I searched under various search</p> <p>2 terms, including "talc," including "ovarian</p> <p>3 cancer," the relationship between the two.</p> <p>4 As I became more familiar with the</p> <p>5 literature, I expanded that search into other</p> <p>6 topics.</p> <p>7 As I became -- I was already</p> <p>8 aware of issues related to the inclusion of</p> <p>9 asbestos in talc deposits, and so I expanded</p> <p>10 my search into that part of the literature</p> <p>11 that relates to asbestos in talc or asbestos</p> <p>12 in ovarian cancer.</p> <p>13 As I felt my opinions would</p> <p>14 need to extend into cancer and carcinogenesis</p> <p>15 in general, I did some search into ovarian</p> <p>16 cancer specifically and general</p> <p>17 carcinogenesis to see what the current state</p> <p>18 of the art was regarding that in the</p> <p>19 literature.</p> <p>20 I looked at some issues of</p> <p>21 mining practices.</p> <p>22 I looked at the Johnson &</p> <p>23 Johnson website. There's a webpage regarding</p> <p>24 talc and ovarian cancer that I looked at.</p>

11 (Pages 38 to 41)

Arch I. "Chip" Carson, M.D., Ph.D.

Page 42	Page 44
<p>1 I looked through old notes and 2 lecture files that I had for information that 3 I've used or accessed previously in my 4 professional capacity for information that 5 was pertinent. 6 Just a very dendritic kind of 7 extensive search. 8 Q. You reviewed these materials 9 that you have told us about and then did you 10 prepare your report? 11 A. At that point I -- well, the 12 literature review took several stages. 13 Typically when you perform a review like 14 this, you end up with a -- I do a very 15 general sort of approach to a review, so I 16 get much more than will be pertinent to my 17 review eventually. 18 I find that a valuable approach 19 because it allows me to find things I 20 wouldn't otherwise find or look for or know 21 to look for. 22 And then I'm able to cull 23 through that information and discard pieces 24 of the search materials that are not relevant</p>	<p>1 review of draft versions of my report and 2 comments, in particular -- 3 Q. Don't tell me about the 4 comments. 5 A. Okay. 6 Q. I don't want to know what the 7 lawyers may have told you. 8 Did the comments come from the 9 lawyers for plaintiffs or did they come from 10 other people? 11 A. They came from the lawyers. 12 They also came from a few of my colleagues. 13 Q. Did you share your report with 14 some of your colleagues? 15 A. I let a few people read it and 16 I talked to them about it. 17 Q. Are the opinions your opinions? 18 A. Yes, they are. 19 Q. Have you told me, you know, 20 generally what you have done to formulate 21 your opinions in this matter? 22 A. Yes, I think so. 23 Q. You did all of this over a 24 30-day period; is that right?</p>
Page 43	Page 45
<p>1 or interesting to me and then refine my 2 search and redo it, extending it into 3 different areas that have now become 4 pertinent in my opinion, until I satisfy 5 myself that I have pretty much covered the 6 waterfront so to speak in terms of a 7 literature review. 8 Q. You did your literature review. 9 You reviewed the Johnson & Johnson website 10 and the other materials that you have told us 11 about. 12 Did you then formulate your 13 opinions and set them down in your report 14 which we marked as Exhibit 2? 15 A. I did. I began writing as I 16 reviewed the literature and continued to take 17 notes which, through a continuous editing 18 process, eventually became my report. 19 Q. Did you prepare your report? 20 A. I did. 21 Q. Did anyone assist you in the 22 preparation of your report? 23 A. No one assisted me in the 24 preparation of my report. I did receive</p>	<p>1 A. Yes. 2 Q. All right. You have no 3 invoices, correct? 4 A. That's correct. 5 Q. Is it typical that you'll work 6 on a matter for some number of months and not 7 generate any invoices? 8 A. Yes. 9 Q. You are billing your time at 10 what rate? 11 A. \$450 per hour. 12 Q. Can you estimate for us the 13 number of hours that you have spent doing 14 your literature review, formulating your 15 opinions, and writing your report? 16 A. There's still some tallying I 17 need to do from my calendar, but it's between 18 150 and 180 hours. 19 Q. Does that include your meetings 20 and communications with plaintiffs' counsel? 21 A. Yes, that's up until today. 22 Q. Other than meeting with 23 Mr. Abney or talking with Mr. Abney -- did 24 you ever meet with Mr. Abney face-to-face?</p>

12 (Pages 42 to 45)

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 46</p> <p>1 A. No.</p> <p>2 Q. What other plaintiff lawyers</p> <p>3 have you met with or talked with as part of</p> <p>4 your formulating your opinions and doing your</p> <p>5 literature review?</p> <p>6 A. We've had a number of</p> <p>7 conference calls where there were several of</p> <p>8 these attorneys' colleagues on the line, but</p> <p>9 in terms of in-person meetings, those have</p> <p>10 been with Ms. O'Dell and Ms. Thompson,</p> <p>11 Dr. Thompson.</p> <p>12 Q. How many meetings have you had</p> <p>13 with Ms. O'Dell?</p> <p>14 A. Three.</p> <p>15 Q. How many meetings have you had</p> <p>16 with Dr. Thompson?</p> <p>17 A. Three.</p> <p>18 Q. Did you know Dr. Thompson</p> <p>19 before you were retained in this matter?</p> <p>20 A. I did not.</p> <p>21 Q. Any other plaintiff lawyers in</p> <p>22 this litigation that you are aware of --</p> <p>23 strike that.</p> <p>24 Any other plaintiff lawyers in</p>	<p style="text-align: right;">Page 48</p> <p>1 A. I have not had any discussions</p> <p>2 with Dr. Dydek. We may have met previously,</p> <p>3 but I don't recall.</p> <p>4 Q. Any previous meeting with</p> <p>5 Dr. Dydek, did it relate to this litigation?</p> <p>6 A. No.</p> <p>7 Q. Did it relate to expert witness</p> <p>8 work that you were doing?</p> <p>9 A. No.</p> <p>10 Q. Do you know what the</p> <p>11 relationship is, if any, between Dr. Thompson</p> <p>12 and Dr. Dydek?</p> <p>13 A. I don't know of any</p> <p>14 relationship outside of his work as an expert</p> <p>15 witness in related litigation.</p> <p>16 Q. Dr. Crowley, do you know</p> <p>17 Michael Crowley?</p> <p>18 A. I know of Dr. Crowley.</p> <p>19 Q. Did you know of Dr. Crowley</p> <p>20 before you were retained in the talcum powder</p> <p>21 litigation?</p> <p>22 A. No.</p> <p>23 Q. Have you ever met with</p> <p>24 Dr. Crowley?</p>
<p style="text-align: right;">Page 47</p> <p>1 this matter that you've had communications</p> <p>2 with other than what you have told us?</p> <p>3 A. No.</p> <p>4 Q. Do you have any social</p> <p>5 relationship with any of the plaintiffs'</p> <p>6 counsel?</p> <p>7 A. No.</p> <p>8 Q. Your relationship with</p> <p>9 Dr. Thompson is just the three meetings that</p> <p>10 you have been involved in with her?</p> <p>11 A. Well, we've exchanged e-mail</p> <p>12 communications, but other than that, no.</p> <p>13 Q. Have you met with or talked</p> <p>14 with any other expert witness for plaintiffs?</p> <p>15 A. No, I have not.</p> <p>16 Q. Do you know who Thomas Dydek</p> <p>17 is?</p> <p>18 A. Yes.</p> <p>19 Q. Who is Thomas Dydek?</p> <p>20 A. He is a toxicologist.</p> <p>21 Q. Where does he practice?</p> <p>22 A. I don't recall.</p> <p>23 Q. Have you had any discussions</p> <p>24 with Dr. Dydek?</p>	<p style="text-align: right;">Page 49</p> <p>1 A. I have not.</p> <p>2 Q. Ever talked with Dr. Crowley?</p> <p>3 A. I have not.</p> <p>4 Q. You reviewed his report as part</p> <p>5 of your review in this matter; is that right?</p> <p>6 A. That's correct.</p> <p>7 Q. Do you know who any of the</p> <p>8 other experts are in this litigation for</p> <p>9 plaintiffs?</p> <p>10 A. Well, I know there are a number</p> <p>11 of people who have generated reports that I</p> <p>12 have also reviewed.</p> <p>13 Q. What reports have you reviewed</p> <p>14 from plaintiffs' other experts?</p> <p>15 A. Well, I've reviewed several</p> <p>16 reports from Dr. Longo, who's done work on</p> <p>17 the presence of asbestos in talc products and</p> <p>18 related things. I think he's the only other</p> <p>19 expert that I'm aware of at this point.</p> <p>20 Q. Well, you're aware of</p> <p>21 Dr. Crowley?</p> <p>22 A. Well, Dr. Crowley, Dr. Longo,</p> <p>23 and Dr. Dydek that you mentioned before.</p> <p>24 Q. Have you reviewed any reports</p>

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 50</p> <p>1 or transcripts from Dr. Dydek?</p> <p>2 A. Yes, I reviewed an expert</p> <p>3 report that he provided before I got involved</p> <p>4 in this case.</p> <p>5 Q. Did you review that report</p> <p>6 before you prepared your report?</p> <p>7 A. Yes.</p> <p>8 Q. Did you review Dr. Crowley's</p> <p>9 report before you prepared your report?</p> <p>10 A. Yes.</p> <p>11 Q. And you reviewed Dr. Longo's</p> <p>12 report before you prepared your report; is</p> <p>13 that right?</p> <p>14 A. I've reviewed one report.</p> <p>15 There was another one that became available</p> <p>16 after.</p> <p>17 Q. The second report is what you</p> <p>18 brought here with you today and we marked as</p> <p>19 Exhibit 5; is that right?</p> <p>20 A. Yes.</p> <p>21 Q. Any other plaintiff experts</p> <p>22 that you're aware of?</p> <p>23 A. Not that I can think of, no.</p> <p>24 Q. Any other reports from</p>	<p style="text-align: right;">Page 52</p> <p>1 that you're aware of?</p> <p>2 A. No.</p> <p>3 Q. Are you aware of any of the</p> <p>4 experts for defendants in the talcum powder</p> <p>5 litigation?</p> <p>6 A. No.</p> <p>7 Q. Have you reviewed any reports</p> <p>8 from any of the experts in the talcum powder</p> <p>9 litigation?</p> <p>10 A. I have not.</p> <p>11 Q. Have you reviewed any of the</p> <p>12 transcripts of defense experts in the talcum</p> <p>13 powder litigation?</p> <p>14 A. I've reviewed some deposition</p> <p>15 transcripts of various witnesses.</p> <p>16 Q. Those witnesses are all listed</p> <p>17 in either your references or your literature;</p> <p>18 is that right?</p> <p>19 A. Yes.</p> <p>20 Q. Did you review the entire</p> <p>21 transcripts of the witnesses that you've</p> <p>22 identified?</p> <p>23 A. I think for the most part I</p> <p>24 would say yes.</p>
<p style="text-align: right;">Page 51</p> <p>1 plaintiffs' experts that you have reviewed?</p> <p>2 A. Well, there's a -- there is an</p> <p>3 article that's been submitted for publication</p> <p>4 which I consider a piece of the scientific</p> <p>5 literature. You mentioned Dr. Saed earlier,</p> <p>6 and I know that he has a relationship with</p> <p>7 this case as well.</p> <p>8 Q. What is his relationship with</p> <p>9 this case, Dr. Saed?</p> <p>10 A. He's provided some work at the</p> <p>11 request of the attorneys here.</p> <p>12 Q. Have you reviewed that work?</p> <p>13 A. That's the subject of several</p> <p>14 articles he's published previously, he and</p> <p>15 his colleagues, as well as the additional one</p> <p>16 that I brought today.</p> <p>17 Q. Other than the articles that</p> <p>18 you have listed on your reference and</p> <p>19 literature list and the Saed article that you</p> <p>20 brought with you today, are you aware of any</p> <p>21 other work that Dr. Saed has done in this</p> <p>22 matter?</p> <p>23 A. No.</p> <p>24 Q. Any other plaintiff experts</p>	<p style="text-align: right;">Page 53</p> <p>1 Q. Did you review the exhibits to</p> <p>2 those depositions?</p> <p>3 A. Yes. If they were provided to</p> <p>4 me, I did, yes.</p> <p>5 Q. Did you believe that it was</p> <p>6 your job to do an independent assessment as</p> <p>7 to whether or not the habitual use of talcum</p> <p>8 powder causes or can cause ovarian cancer?</p> <p>9 MS. O'DELL: Object to the</p> <p>10 form.</p> <p>11 A. Could you repeat the question,</p> <p>12 please.</p> <p>13 BY MR. ZELLERS:</p> <p>14 Q. Sure.</p> <p>15 Plaintiffs asked you to --</p> <p>16 strike that.</p> <p>17 Plaintiffs' counsel asked you</p> <p>18 to answer that question; is that right?</p> <p>19 A. Yes.</p> <p>20 Q. You understood that they were</p> <p>21 looking to develop an association or a causal</p> <p>22 relationship between the habitual use of</p> <p>23 talcum powder and ovarian cancer, correct?</p> <p>24 A. Yes.</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 54	Page 56
<p>1 MS. O'DELL: Object to the 2 form. 3 Excuse me, I'm sorry, 4 gentlemen. Give me just one second to 5 object if I need to. 6 THE WITNESS: Sure. 7 MS. O'DELL: Thank you. 8 BY MR. ZELLERS: 9 Q. Did you consider the literature 10 and the sources that refuted that association 11 or causal relationship? 12 A. I tried to consider all the 13 available literature. 14 Q. When you wrote your report 15 setting forth your opinions, did you set 16 forth the sources that refuted the 17 propositions you were making? 18 A. I cited several sources that on 19 the surface might seem to refute my opinions. 20 Q. And you believe that is 21 contained in your report which we marked as 22 Exhibit 2; is that right? 23 A. Yes. 24 Q. Have you been involved in any</p>	<p>1 A. Probably 5%. 2 Q. What percent of your income 3 comes from the work that you do as a 4 consultant? 5 A. Of course it varies quite a bit 6 from moment to moment, but it would be less 7 than 10%. 8 Q. Have you ever testified at 9 trial? 10 A. Yes. 11 Q. On how many occasions? 12 A. Probably ten. 13 Q. The 30 to 35 depositions that 14 you've given previously, those have been in 15 the context of you providing litigation 16 consulting services; is that right? 17 A. In terms of expert testimony, 18 yes. 19 Q. The trial appearances that 20 you've made, are those also in your capacity 21 as an expert witness? 22 A. Yes. 23 Q. Have you been involved in other 24 litigations?</p>
Page 55	Page 57
<p>1 other talcum powder litigation other than 2 this talc MDL matter that Mr. Abney talked to 3 you about? 4 A. No, I haven't. 5 Q. In the 30 to 35 occasions that 6 you've testified in the past, have any of 7 those been on issues relating to talcum 8 powder and any association between talcum 9 powder and ovarian cancer? 10 A. No. 11 Q. You are not an expert in 12 asbestos, correct? 13 MS. O'DELL: Object to the 14 form. 15 A. I'm an occupational medicine 16 physician, and I have a significant amount of 17 awareness and training regarding asbestos as 18 it relates to occupational exposures and 19 general environmental exposures, but I don't 20 consider myself an asbestos expert. 21 BY MR. ZELLERS: 22 Q. What percentage of your time do 23 you spend working as a consultant? And I'm 24 talking about your professional time.</p>	<p>1 A. Yes. 2 Q. What other litigations have you 3 been involved in as an expert? 4 A. Well, I've been asked to 5 provide opinions and testify in a number of 6 cases, most of which involved personal injury 7 in the occupational setting or environmental 8 exposures. 9 Q. Has the majority of your expert 10 work in the occupational setting and for 11 environmental exposures been on behalf of 12 plaintiffs? 13 A. No, it's been split about 14 50/50, plaintiff and defense. 15 Q. Have you ever been retained in 16 a case involving cosmetic products? 17 A. No. 18 Q. Your curriculum vitae that we 19 marked as Exhibit 3, is it correct and up to 20 date? 21 A. It was up to date at the time 22 of submission of my report in the end of 23 2018. 24 Q. What additions need to be made</p>

15 (Pages 54 to 57)

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 58</p> <p>1 or corrections need to be made to your CV, 2 Exhibit 3, to bring it up to date? 3 A. Well, I've terminated a 4 relationship with the University of Texas 5 Medical Branch in Galveston where I was 6 their -- the medical director of their 7 Employee Health Services Clinic. I continue 8 to be -- serve as an assistant clinical 9 professor of preventive medicine and family 10 medicine at that institution. 11 I have terminated my 12 relationship with the Enbridge Corporation as 13 their medical director. 14 The Spectra Energy entry, which 15 is about the seventh on the list of 16 professional activities, is also terminated 17 as that was a company that was merged and 18 became Enbridge. 19 Q. Any other corrections or 20 updates to your curriculum vitae that we've 21 marked as Exhibit 3? 22 A. No. 23 Q. Why are you no longer serving 24 as medical director, Employee Health Services</p>	<p style="text-align: right;">Page 60</p> <p>1 is that right? 2 A. Yes. 3 Q. What percentage of your time is 4 spent in the clinical practice of medicine? 5 A. Currently I see patients 6 one-half day a week and work as a supervisor 7 of the occupational medicine residents for 8 additional time during the week, so clinical 9 activities would be about probably 12 hours a 10 week. 11 Q. Do you see or treat women for 12 gynecologic cancer? 13 A. I do not. 14 Q. You have never worked for a 15 company that manufactures cosmetic products, 16 correct? 17 A. That's correct. 18 Q. You're not a gynecologist or an 19 oncologist, correct? 20 A. That's correct. 21 Q. You're not a cancer biologist? 22 MS. O'DELL: Object to the 23 form. 24 A. That's correct.</p>
<p style="text-align: right;">Page 59</p> <p>1 with the University of Texas? 2 MS. O'DELL: Objection to form. 3 A. That was a contract that I had 4 through the University of Texas Houston 5 College of Nursing that provided those 6 services to UTMB, and UTMB decided to make a 7 change and go with another contractor. 8 BY MR. ZELLERS: 9 Q. Why are you no longer serving 10 as medical director for Spectra Energy 11 Corporation and Enbridge Corporation? 12 A. Well, Spectra Energy no longer 13 exists; it became Enbridge Corporation. And 14 in October of 2018, I determined that I did 15 not -- I no longer had sufficient time to 16 provide that service. 17 Q. Your undergraduate degree was 18 in biologic sciences with a concentration in 19 engineering; is that right? 20 A. Yes. 21 Q. You received a Ph.D. in 22 toxicology; is that right? 23 A. Yes. 24 Q. And then later an M.D. degree;</p>	<p style="text-align: right;">Page 61</p> <p>1 BY MR. ZELLERS: 2 Q. You are not a geologist, 3 mineralogist or microscopist? 4 A. That's correct. 5 Q. You're not an epidemiologist? 6 A. Well, I may be considered an 7 epidemiologist simply by my appointment as an 8 associate professor in the Department of 9 Epidemiology at the School of Public Health 10 here in Houston. 11 Q. Do you have any professional 12 education in the field -- well, strike that. 13 Have you ever published or 14 conducted a meta-analysis? 15 A. I have conducted meta-analyses. 16 I've not published them. 17 Q. You did not do any type of 18 fellowship in epidemiology, correct? 19 A. That's correct. 20 Q. You're not board certified in 21 epidemiology; is that right? 22 A. I don't believe there is a 23 board certification in epidemiology. 24 Q. You're not a biostatistician or</p>

16 (Pages 58 to 61)

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 62</p> <p>1 a pulmonologist?</p> <p>2 A. That's correct.</p> <p>3 Q. You're not a material</p> <p>4 scientist?</p> <p>5 A. That's correct.</p> <p>6 Q. Nor are you a pathologist?</p> <p>7 A. Correct.</p> <p>8 Q. You've never been involved in</p> <p>9 any pathological exam or research relating to</p> <p>10 ovarian cancer; is that right?</p> <p>11 MS. O'DELL: Object to the</p> <p>12 form.</p> <p>13 A. I'm not sure exactly what you</p> <p>14 mean by your question.</p> <p>15 BY MR. ZELLERS:</p> <p>16 Q. Sure. Let me withdraw that.</p> <p>17 You've never been involved in</p> <p>18 terms of the research relating to ovarian</p> <p>19 cancer, correct?</p> <p>20 A. Not specifically, no.</p> <p>21 Q. You've never authored any</p> <p>22 literature or publications relating to talcum</p> <p>23 powder?</p> <p>24 A. No.</p>	<p style="text-align: right;">Page 64</p> <p>1 A. I think I had opinions about</p> <p>2 talcum powder and its constituents, but if</p> <p>3 you could be more specific, I might be able</p> <p>4 to give you a more specific answer.</p> <p>5 BY MR. ZELLERS:</p> <p>6 Q. Did you ever, before getting</p> <p>7 involved in this litigation in October of</p> <p>8 2018, do research -- strike that.</p> <p>9 You've never published on</p> <p>10 talcum powder, correct?</p> <p>11 A. That's correct.</p> <p>12 Q. You have never published on the</p> <p>13 constituent components of talcum powder,</p> <p>14 correct?</p> <p>15 A. That may not be the case. I've</p> <p>16 done work in some other minerals which have</p> <p>17 resulted in publications, for example,</p> <p>18 vermiculite, which have touched on the issues</p> <p>19 of asbestos, association with talc,</p> <p>20 association with other minerals, but never</p> <p>21 specifically regarding talc.</p> <p>22 Q. Are those publications on your</p> <p>23 CV?</p> <p>24 A. They are.</p>
<p style="text-align: right;">Page 63</p> <p>1 Q. Or relating to ovarian cancer,</p> <p>2 correct?</p> <p>3 A. No.</p> <p>4 Q. Okay. What journals -- well,</p> <p>5 strike that.</p> <p>6 You have never published on</p> <p>7 fragrance chemicals; is that right?</p> <p>8 MS. O'DELL: Object to the</p> <p>9 form.</p> <p>10 A. That's correct.</p> <p>11 BY MR. ZELLERS:</p> <p>12 Q. Never done any research on</p> <p>13 fragrance chemicals, correct?</p> <p>14 A. I've done some work with</p> <p>15 fragrance chemicals and health effects that</p> <p>16 are associated with them, but I have not -- I</p> <p>17 would not classify that as research or</p> <p>18 publication.</p> <p>19 Q. You had no opinions regarding</p> <p>20 talcum powder or any of its constituent</p> <p>21 components before getting involved in this</p> <p>22 litigation; is that right?</p> <p>23 MS. O'DELL: Object to the</p> <p>24 form.</p>	<p style="text-align: right;">Page 65</p> <p>1 Q. That we marked as Exhibit 3?</p> <p>2 A. Yes.</p> <p>3 Q. Okay. Have you ever</p> <p>4 communicated with the FDA regarding talcum</p> <p>5 powder?</p> <p>6 A. I've not.</p> <p>7 Q. Have you ever communicated with</p> <p>8 Health Canada regarding talcum powder?</p> <p>9 A. No.</p> <p>10 Q. When did you first start</p> <p>11 preparing your report which we've marked as</p> <p>12 Exhibit 2?</p> <p>13 A. Well, I began a literature</p> <p>14 review immediately after talking to</p> <p>15 Mr. Abney.</p> <p>16 Q. My question, I guess, is: When</p> <p>17 did you start writing your report?</p> <p>18 A. Well, technically I started</p> <p>19 writing my report after I was retained by</p> <p>20 plaintiffs' counsel.</p> <p>21 Q. Late October, early</p> <p>22 November 2018?</p> <p>23 MS. O'DELL: Object to the</p> <p>24 form, misstates his prior testimony.</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 66	Page 68
<p>1 A. In October of 2018.</p> <p>2 BY MR. ZELLERS:</p> <p>3 Q. Have you reviewed any of the</p> <p>4 deposition transcripts of any of the experts</p> <p>5 that have been deposed in this litigation?</p> <p>6 A. Yes.</p> <p>7 Q. What deposition transcripts of</p> <p>8 experts have you reviewed?</p> <p>9 A. Oh, of experts? No, I have not</p> <p>10 reviewed -- well, I've reviewed -- I've</p> <p>11 reviewed expert depositions, but I don't know</p> <p>12 what case they were deposed in, but it</p> <p>13 relates to talcum powder and ovarian cancer</p> <p>14 issue.</p> <p>15 Q. What expert depositions have</p> <p>16 you reviewed?</p> <p>17 A. They're all cited in the</p> <p>18 literature exhibit.</p> <p>19 Q. All of the deposition</p> <p>20 transcripts that you've reviewed are cited in</p> <p>21 Exhibit 4?</p> <p>22 A. I think any of the transcripts</p> <p>23 that I review are -- reviewed are probably</p> <p>24 included in here.</p>	<p>1 and bolts of what goes on legally in this</p> <p>2 case. I know there are multiple lawsuits,</p> <p>3 and I'm not sure which ones those -- these</p> <p>4 are pertinent to.</p> <p>5 BY MR. ZELLERS:</p> <p>6 Q. My question is a little</p> <p>7 different and I hope pretty simple: In</p> <p>8 addition to the depositions, transcripts and</p> <p>9 reports that you have listed on pages 27 and</p> <p>10 28 of Exhibit 4, your literature list, are</p> <p>11 there any additional depositions or</p> <p>12 transcripts that you've reviewed?</p> <p>13 A. Pardon me for a moment while I</p> <p>14 review this.</p> <p>15 (Document review.)</p> <p>16 A. No, I'm not aware that there</p> <p>17 are.</p> <p>18 BY MR. ZELLERS:</p> <p>19 Q. Your testimony earlier was that</p> <p>20 you have reviewed each of those depositions</p> <p>21 in their entirety; is that right?</p> <p>22 A. Yes.</p> <p>23 Q. You have also reviewed the</p> <p>24 exhibits to those depositions; is that right?</p>
Page 67	Page 69
<p>1 Q. Are you aware of reviewing any</p> <p>2 transcripts that you did not include in your</p> <p>3 literature statement?</p> <p>4 A. I'm not aware, but I can't tell</p> <p>5 you as I'm sitting here right now whether all</p> <p>6 of those are included in this literature</p> <p>7 statement or not.</p> <p>8 Q. You -- looking at page --</p> <p>9 MS. O'DELL: I'm sorry. Go</p> <p>10 ahead.</p> <p>11 BY MR. ZELLERS:</p> <p>12 Q. Are there any that you believe</p> <p>13 you have reviewed that are not included in</p> <p>14 the literature statement?</p> <p>15 A. Well, let me just see here.</p> <p>16 There are --</p> <p>17 MS. O'DELL: I think they're at</p> <p>18 the end, Dr. Carson.</p> <p>19 THE WITNESS: At the very end.</p> <p>20 A. Beginning on page 27 is a list</p> <p>21 of the depositions, transcripts and reports</p> <p>22 that I've reviewed, which include some of the</p> <p>23 expert witnesses, but again, I would have to</p> <p>24 say I'm -- I'm sort of unaware of the nuts</p>	<p>1 A. If they were made available to</p> <p>2 me, I've looked at all those exhibits as</p> <p>3 well.</p> <p>4 Q. On page 27 of Exhibit 4, who is</p> <p>5 Annie Yessaian?</p> <p>6 A. On page 24?</p> <p>7 Q. Strike that. I'm sorry. On</p> <p>8 page 27 of Exhibit 4 --</p> <p>9 A. I see.</p> <p>10 Q. -- at the bottom, who is Annie</p> <p>11 Yessaian?</p> <p>12 A. I don't recall.</p> <p>13 Q. You reviewed her entire</p> <p>14 transcript and you don't recall who she is?</p> <p>15 A. I don't.</p> <p>16 Q. Well, go to the next page. Who</p> <p>17 is Pat Downey?</p> <p>18 A. I believe Pat Downey is an</p> <p>19 operative of the Imerys company.</p> <p>20 Q. Do you know what Mr. Downey's</p> <p>21 position is?</p> <p>22 A. It's a supervisory position</p> <p>23 regarding -- regarding quality of the talc</p> <p>24 product.</p>

18 (Pages 66 to 69)

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 70</p> <p>1 Q. Who is John Hopkins?</p> <p>2 A. John Hopkins is an official, I</p> <p>3 believe, of -- I'm not sure -- of Johnson &</p> <p>4 Johnson, I believe, who has some oversight of</p> <p>5 talc quality as well.</p> <p>6 Q. Susan Nicholson, who is she?</p> <p>7 A. I don't recall.</p> <p>8 Q. Who is Julie Pier?</p> <p>9 A. Julie Pier is another scientist</p> <p>10 who works for Imerys, who is responsible for</p> <p>11 testing and quality.</p> <p>12 Q. In your clinical and academic</p> <p>13 practice, do you typically rely upon</p> <p>14 depositions of company witnesses or experts?</p> <p>15 MS. O'DELL: Object to the</p> <p>16 form.</p> <p>17 A. If there's pertinent</p> <p>18 information in there that leads me to other</p> <p>19 areas or helps me formulate my opinions, then</p> <p>20 yes.</p> <p>21 BY MR. ZELLERS:</p> <p>22 Q. In the papers and publications</p> <p>23 that you have identified in your curriculum</p> <p>24 vitae, Exhibit 3, do you ever recall citing</p>	<p style="text-align: right;">Page 72</p> <p>1 BY MR. ZELLERS:</p> <p>2 Q. Once you looked at these</p> <p>3 documents, the Imerys documents and the</p> <p>4 documents produced by the Johnson & Johnson</p> <p>5 companies, did you ask plaintiffs' counsel</p> <p>6 for any additional documents?</p> <p>7 A. I did not. My understanding is</p> <p>8 that most of these are reports, testing</p> <p>9 reports, and most of them are positive</p> <p>10 results regarding the presence of asbestos or</p> <p>11 fibers in the product. And I know that there</p> <p>12 were many others that may not have shown</p> <p>13 positive results that I did not look at.</p> <p>14 Q. Did you ask the plaintiff</p> <p>15 attorneys to show you or provide you with the</p> <p>16 testing documentation that showed an absence</p> <p>17 of asbestos or asbestos fibers in the talcum</p> <p>18 powder?</p> <p>19 A. Regarding the test results that</p> <p>20 are equivalent to these that were negative,</p> <p>21 no, I did not request those.</p> <p>22 Q. Did you review documents</p> <p>23 relating to any fragrance chemicals that are</p> <p>24 contained in or that you believe are</p>
<p style="text-align: right;">Page 71</p> <p>1 to company witness deposition testimony?</p> <p>2 A. I don't typically cite</p> <p>3 deposition testimonies in published papers.</p> <p>4 Q. You cite to various company</p> <p>5 documents. This is on pages 29 to 30 of</p> <p>6 Exhibit 4, your list of literature; is that</p> <p>7 right?</p> <p>8 A. Yes.</p> <p>9 Q. Did you rely on these documents</p> <p>10 in formulating your opinions?</p> <p>11 A. Yes.</p> <p>12 Q. Were these documents selected</p> <p>13 for you by plaintiffs' counsel?</p> <p>14 A. Yes, they were.</p> <p>15 Q. Are you able to identify what</p> <p>16 each of the documents are?</p> <p>17 MS. O'DELL: Based on the Bates</p> <p>18 number?</p> <p>19 MR. ZELLERS: Based on the</p> <p>20 Bates numbers.</p> <p>21 A. No, I am not. I would have to</p> <p>22 look at each individual document to refresh</p> <p>23 my memory as to what it contains.</p> <p>24 ///</p>	<p style="text-align: right;">Page 73</p> <p>1 contained in the talcum powder?</p> <p>2 A. Yes. I did review some lists</p> <p>3 and, of course, Dr. Crowley's report.</p> <p>4 Q. Do you have any idea or</p> <p>5 understanding as to the amount or amounts of</p> <p>6 the fragrance chemicals that are contained in</p> <p>7 the talcum powder in either the Johnson &</p> <p>8 Johnson Consumer company talcum powder that's</p> <p>9 involved in this litigation?</p> <p>10 MS. O'DELL: Object to the</p> <p>11 form.</p> <p>12 MR. ZELLERS: Let me withdraw</p> <p>13 that.</p> <p>14 BY MR. ZELLERS:</p> <p>15 Q. Do you know or have any</p> <p>16 understanding as to the amounts of fragrance</p> <p>17 chemicals that are in the talcum powder?</p> <p>18 A. I do not have the specific</p> <p>19 formulation or quantities of those substances</p> <p>20 that contributed to the products.</p> <p>21 Q. Do --</p> <p>22 MS. O'DELL: Excuse me.</p> <p>23 MR. ZELLERS: Ms. O'Dell,</p> <p>24 please, I'm going to let the doctor</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 74	Page 76
<p>1 finish.</p> <p>2 MS. O'DELL: In that instance,</p> <p>3 I don't know that he was, and so if he</p> <p>4 was, my apologies.</p> <p>5 MR. ZELLERS: It's okay.</p> <p>6 MS. O'DELL: I've been on my</p> <p>7 best behavior today, as you know,</p> <p>8 so -- but I don't want the witness to</p> <p>9 feel as if they're being cut off, and</p> <p>10 because Dr. Carson is a very polite</p> <p>11 gentlemen, he would let you interrupt</p> <p>12 him.</p> <p>13 MR. ZELLERS: Of course.</p> <p>14 MS. O'DELL: And I don't think</p> <p>15 that's fair.</p> <p>16 So, Dr. Carson, if you're</p> <p>17 finished, great. If you're not, you</p> <p>18 may continue.</p> <p>19 A. Well, I was going to say that</p> <p>20 my opinion is that there are very small</p> <p>21 quantities of those substances that</p> <p>22 contribute to the fragrance component.</p> <p>23 BY MR. ZELLERS:</p> <p>24 Q. Do you know how those</p>	<p>1 understanding of business practices and these</p> <p>2 types of industries, I've reviewed an</p> <p>3 extremely small percentage of those.</p> <p>4 Q. Is it your practice in your</p> <p>5 academic work or your clinical research work</p> <p>6 to rely on internal company documents?</p> <p>7 A. Yes, it is.</p> <p>8 Q. Do you rely on internal company</p> <p>9 documents when you publish papers?</p> <p>10 A. In some cases.</p> <p>11 Q. Can you tell me in what cases</p> <p>12 or instances you have relied on internal</p> <p>13 company documents in your publications?</p> <p>14 A. Well, for example, I did -- I</p> <p>15 was involved in some research work in</p> <p>16 conjunction with NIOSH at the O.M. Scott</p> <p>17 Company at Marysville, Ohio, where we did</p> <p>18 a -- we performed a research in the company</p> <p>19 and relied on some internal documents in</p> <p>20 terms of gauging concentrations, industrial</p> <p>21 hygiene records and so forth, in order to</p> <p>22 draw conclusions that were pertinent to those</p> <p>23 publications.</p> <p>24 Q. Was that data or were those</p>
Page 75	Page 77
<p>1 quantities of fragrance chemicals may have</p> <p>2 changed over the years?</p> <p>3 A. My understanding is they have</p> <p>4 not changed dramatically, but there have been</p> <p>5 certain substitutions over time.</p> <p>6 Q. Do you agree that to the extent</p> <p>7 that you have reviewed internal documents,</p> <p>8 either of Imerys or from Johnson & Johnson</p> <p>9 companies, that you have only reviewed the</p> <p>10 documents that were hand-selected by the</p> <p>11 plaintiff lawyers for you to review?</p> <p>12 MS. O'DELL: Object to the</p> <p>13 form.</p> <p>14 A. I agree that the only documents</p> <p>15 that I've reviewed regarding the internal</p> <p>16 products of Johnson & Johnson or Imerys are</p> <p>17 the ones that were provided by the</p> <p>18 plaintiffs' attorneys.</p> <p>19 BY MR. ZELLERS:</p> <p>20 Q. Do you know what percentage of</p> <p>21 the documents that have been produced in this</p> <p>22 litigation by the Johnson & Johnson companies</p> <p>23 and by Imerys you have reviewed?</p> <p>24 A. Well, based on my general</p>	<p>1 internal communications that you relied on?</p> <p>2 A. They were both.</p> <p>3 Q. What is the publication on your</p> <p>4 CV where you relied on those materials?</p> <p>5 A. Well, let me see here. I think</p> <p>6 the first author -- looking back here -- the</p> <p>7 first author would be Jim Lockey.</p> <p>8 Q. Looking at page 6?</p> <p>9 A. It's on page 6, and the --</p> <p>10 there are two publications there. One is</p> <p>11 Pulmonary Changes After Exposure to</p> <p>12 Vermiculite Contaminated With Fibrous</p> <p>13 Tremolite that appeared in the American</p> <p>14 Review of Respiratory Disease in 1984.</p> <p>15 There's another publication</p> <p>16 which is a book chapter called Pulmonary</p> <p>17 Hazards From Vermiculite that appeared in a</p> <p>18 book titled Health Issues Related to Metal</p> <p>19 and Nonmetallic Mining.</p> <p>20 Q. Do you agree that when you have</p> <p>21 been provided only a small subset of the</p> <p>22 documents of a company relating to a</p> <p>23 particular product, that those documents can</p> <p>24 potentially be misleading?</p>

20 (Pages 74 to 77)

Arch I. "Chip" Carson, M.D., Ph.D.

Page 78	Page 80
<p>1 MS. O'DELL: Object to the 2 form. 3 A. I don't agree that that's the 4 case because I am capable of understanding 5 that it's a subset of available information, 6 and I can make a reliable determination on 7 the pertinence of that material regardless. 8 BY MR. ZELLERS: 9 Q. Without looking at any other 10 documents or any documents that may put the 11 documents you were provided in context? 12 MS. O'DELL: Object to the 13 form. 14 A. It depends on the specific 15 case, but I would say in most cases, yes. 16 BY MR. ZELLERS: 17 Q. In this case, it was not 18 necessary for you to look at any documents 19 other than those specific documents the 20 plaintiffs provided to you; is that your 21 testimony? 22 MS. O'DELL: Object to the 23 form. 24 A. Regarding the contribution to</p>	<p>1 department? 2 A. She's in my department, yes. 3 Q. You understand she's a 4 lawyer -- strike that. 5 You understand she's an expert 6 for the plaintiffs in this litigation? 7 A. I didn't know that. 8 Q. Dr. Ness never told you that 9 she was an expert witness for plaintiffs in 10 this matter? 11 A. No, we didn't discuss this 12 case. We only discussed the issue. 13 Q. Any other colleagues that you 14 discussed your report and opinions with? 15 MS. O'DELL: Object to the 16 form. 17 A. I think I shared some of my 18 thinking with the occupational medicine 19 residents as a group and asked them to 20 consider certain issues in the case. 21 BY MR. ZELLERS: 22 Q. Did they contribute to your 23 review and analysis and opinions? 24 A. We had an interesting</p>
Page 79	Page 81
<p>1 my opinions, I would say, yes, it was not 2 necessary. 3 BY MR. ZELLERS: 4 Q. Did you do any independent 5 investigation to reach your opinions, other 6 than the literature search and review of 7 websites that you told us about earlier? 8 A. Other than just general 9 discussion with colleagues, no. 10 Q. Did any of the colleagues that 11 you spoke with provide you with any 12 substantive support for your opinions? 13 A. Not that I can recall. It was 14 mostly just helpful feedback. 15 Q. The colleagues that you spoke 16 with were who? 17 A. Various colleagues in my 18 department or in the School of Public Health. 19 Q. Who? 20 A. Well, Dr. George Delclos, who 21 is a pulmonologist; Dr. Brett Perkison, who 22 is an occupational medicine physician; 23 Roberta Ness, who is an epidemiologist. 24 Q. Roberta Ness is in your</p>	<p>1 discussion, but I don't think that changed my 2 opinions in any way. 3 Q. The opinions that you're 4 expressing in this case are your opinions; is 5 that right? 6 A. That's correct. 7 Q. Your opinions you set forth in 8 your report beginning on page 7; is that 9 right? 10 A. Let me refer to my report, if 11 you don't mind. 12 MS. O'DELL: Object to the 13 form. 14 A. I would say -- I would say in 15 answer to that question that, yes, my 16 opinions do begin on page 7 of the report. 17 BY MR. ZELLERS: 18 Q. Your first opinion set forth on 19 page 7 is that talcum powder is immunogenic 20 and carcinogenic; is that right? 21 A. Yes. 22 MS. O'DELL: Excuse me. 23 BY MR. ZELLERS: 24 Q. Your second opinion is that</p>

21 (Pages 78 to 81)

Arch I. "Chip" Carson, M.D., Ph.D.

Page 82	Page 84
<p>1 perineal use of talcum powder results in 2 direct exposure to the ovaries either via 3 inhalation or migration through the female 4 reproductive tract, correct? 5 A. I would not phrase the opinion 6 in that way, but in general, that is my 7 opinion, yes. 8 Q. How would you phrase your 9 second opinion? 10 A. I think my second opinion 11 relates mostly to the direct exposure to the 12 reproductive tract that perineal use of 13 talcum powder produces. 14 Q. Are you opining as to 15 inhalation as an exposure of talcum powder to 16 women's ovaries? 17 MS. O'DELL: Object to the 18 form. 19 A. Only as a secondary route of 20 exposure. 21 BY MR. ZELLERS: 22 Q. Is it part of your opinions or 23 do you defer to other experts on inhalation? 24 A. I would include that as my</p>	<p>1 MS. O'DELL: Object to the 2 form. 3 A. It's an anatomical fact. The 4 physiology of the reproductive system does 5 not provide the ovaries with the kind of 6 clearance system that, for example, the lungs 7 would have for inhaled exposures. 8 BY MR. ZELLERS: 9 Q. The words "no intrinsic 10 elimination system," are those your words or 11 are those words that you've seen reported in 12 another study or another paper? 13 A. I think that's a fairly generic 14 description, that those are my words. 15 Q. Your fourth opinion is that you 16 believe that the epidemiological studies on 17 talcum powder and ovarian cancer show about a 18 30% increased risk; is that right? 19 A. Correct. 20 MS. O'DELL: Object to the 21 form. 22 BY MR. ZELLERS: 23 Q. As you told us at the outset, 24 those are all still your opinions, although</p>
Page 83	Page 85
<p>1 opinion. 2 Q. So you're testifying here today 3 that the perineal use of talcum powder 4 results in direct exposure to the ovaries 5 through migration through the female 6 reproductive tract and that inhalation also 7 results in exposure of talcum powder to the 8 ovaries; is that right? 9 A. That is correct, but my basic 10 opinion is that perineal use of talcum powder 11 exposes the entire reproductive tract, 12 including the pelvic cavity. So it's a bit 13 more extensive than your phrasing. 14 Q. Your third opinion is very 15 similar to your first opinion, except that 16 here you add that it's your opinion that the 17 ovaries are particularly susceptible to the 18 carcinogenicity of talcum powder because they 19 have, in your words, "no intrinsic 20 elimination system"; is that right? 21 A. That's correct. 22 Q. Is that something you came up 23 with on your own, no intrinsic elimination 24 system?</p>	<p>1 you do believe even stronger that there is a 2 causal association between talcum powder and 3 ovarian cancer; is that right? 4 A. That's correct. 5 Q. Have you published on your 6 theory that baby powder causes ovarian 7 cancer? 8 A. No. 9 Q. Do you have plans to do that? 10 A. Not presently. 11 Q. Have you conducted any tests or 12 experiments to confirm your theory that talc 13 migrates to the ovaries? 14 MS. O'DELL: Object to the 15 form. 16 A. These are conclusions that I 17 have drawn based on published literature. I 18 wouldn't characterize them as a theory. I 19 think they're pretty much established fact. 20 BY MR. ZELLERS: 21 Q. I'm going to ask you about all 22 these opinions, and so we'll go through the 23 literature and determine -- or at least I'll 24 ask you questions about why you think that</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 86	Page 88
<p>1 some of these matters are established fact. 2 My question is: Did you do any 3 tests or experiments as part of your review 4 and analysis in this matter? 5 A. I did not. 6 Q. Did you do any tests or 7 experiments relating to your opinion that 8 talc causes cancer via inflammation? 9 A. I did not. 10 Q. Can you identify any article 11 that identifies inflammation anywhere in a 12 woman's reproductive tract that results from 13 external genital talc application? 14 MS. O'DELL: Object to the 15 form. 16 A. I think there are a number of 17 published articles that allude to that 18 relationship and draw a fairly strong 19 conclusion that it exists. 20 MS. O'DELL: Mike, excuse me, 21 and I'm sorry to interrupt. We've 22 been going over an hour and a half. 23 Are you at a point where we can take 24 just a short break for...</p>	<p>1 you aware of any article that identifies 2 inflammation in a woman's reproductive tract 3 resulting from external genital talc 4 application? 5 MS. O'DELL: Object to the 6 form. 7 A. I would say that the studies 8 which have looked at that have relied on the 9 result of internal application to show 10 migration. There have been studies that have 11 shown inflammation as the result of talc, and 12 in my opinion, external application is the 13 same as internal application in the 14 reproductive tract. 15 BY MR. ZELLERS: 16 Q. I don't mean to be 17 argumentative, and I don't want to be, but 18 can you name me an article that identifies 19 inflammation in a woman's reproductive tract 20 resulting from external genital talc 21 application? 22 MS. O'DELL: Objection, asked 23 and answered. 24 A. I can't specifically.</p>
Page 87	Page 89
<p>1 MR. ZELLERS: Sure, we can. 2 Let me just ask these couple of 3 questions, and then we'll take a 4 break. 5 MS. O'DELL: Sure. 6 BY MR. ZELLERS: 7 Q. So please identify for me any 8 articles that you have reviewed that identify 9 inflammation anywhere in a woman's 10 reproductive tract resulting from external 11 genital talc application. 12 MS. O'DELL: Objection to form. 13 A. I think -- I think the research 14 evidence that includes the epidemiology 15 piece, which is limited to external 16 application of talcum powder, has significant 17 enough correspondence with the biological 18 experimentation literature that it allows us 19 to draw those conclusions. 20 BY MR. ZELLERS: 21 Q. I understand you've drawn some 22 conclusions here, and I'm going to ask you 23 about these conclusions. 24 But what my question is: Are</p>	<p>1 MR. ZELLERS: Let's take a 2 break. 3 THE VIDEOGRAPHER: We're off 4 the record, 10:37, end of Tape 1. 5 (Recess taken, 10:37 a.m. to 6 10:55 a.m.) 7 THE VIDEOGRAPHER: We're on the 8 record at 10:55, beginning of Tape 2. 9 BY MR. ZELLERS: 10 Q. Dr. Carson, two of the things 11 that you have reviewed since authoring your 12 report in November of 2018 that you believe 13 support your conclusions in this matter and 14 your opinions in this matter are the draft 15 screening assessment from Health Canada, 16 which we marked as Exhibit 9, and the Taher 17 paper, which has been marked as Exhibit 7; is 18 that right? 19 A. Yes. 20 Q. Have you looked into what other 21 public health authorities, other than 22 Health Canada, have had to say about talc and 23 ovarian cancer? 24 A. Yes, I have.</p>

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 90</p> <p>1 Q. Did you -- strike that. 2 Are you familiar with the 3 Center for Disease Control in the United 4 States? 5 A. Yes. 6 Q. Did you review the CDC and its 7 position on any relationship between talcum 8 powder and ovarian cancer? 9 A. That may have been part of my 10 review, but I don't specifically recall now 11 what the CDC has on that issue. 12 Q. CDC does not list talc or 13 talcum powder as a risk factor for ovarian 14 cancer, correct? 15 A. It's quite possible. 16 Q. Mayo Clinic and a number of 17 medical centers do not list talc as a risk 18 factor for ovarian cancer, correct? 19 A. That may be true. 20 Q. Did you consider, or are you 21 familiar with the National Cancer Institute? 22 A. I am. 23 Q. National Cancer Institute is a 24 leading health authority in the United</p>	<p style="text-align: right;">Page 92</p> <p>1 MR. ZELLERS: I'm asking the 2 doctor a question. 3 MS. O'DELL: Okay. 4 MR. ZELLERS: So -- 5 MS. O'DELL: That's specific 6 language, and if you have specific 7 language that you're reading from the 8 report or you've taken from the 9 report, I would just ask that you show 10 the doctor. 11 MR. ZELLERS: Ms. O'Dell, I 12 have my question. I'm asking my 13 question. The doctor can either 14 answer my question or not answer my 15 question. I'm not reading from a 16 document. I'm reading from my notes. 17 MS. O'DELL: I object to the 18 form of the question. I think it's 19 unfair. 20 MR. ZELLERS: Can you answer 21 that question, Doctor? 22 A. I would agree that that 23 restates the general opinion of the NCI as 24 published, but in order to verify the</p>
<p style="text-align: right;">Page 91</p> <p>1 States; is that right? 2 A. Yes. 3 Q. Particularly in the area of 4 cancer and materials that may or may not be 5 carcinogenic; is that right? 6 A. Well, the National Cancer 7 Institute is responsible for guiding national 8 research policies as it relates to cancers, 9 and that's one of their considerations is 10 substances that may be related to cancer. 11 Q. When you reviewed what the 12 National Cancer Institute has determined with 13 respect to talcum powder and whether or not 14 it is a risk factor for ovarian cancer, what 15 did you find? 16 A. The most recent publication 17 that I viewed discounts the relationship. 18 Q. In fact, the National Cancer 19 Institute has concluded that the weight of 20 the evidence does not support an association 21 between perineal talc exposure and increased 22 risk of ovarian cancer; is that right? 23 MS. O'DELL: Are you reading a 24 quote from the document?</p>	<p style="text-align: right;">Page 93</p> <p>1 specific wording, I would need to look at the 2 document. 3 BY MR. ZELLERS: 4 Q. Why would you rely on 5 Health Canada but not these other public 6 health organizations, including Center for 7 Disease Control and the National Cancer 8 Institute? 9 A. Well, there are a number of 10 reasons. There are lots of public health 11 organizations. Many of them have different 12 interests and different approaches in the way 13 that they address problems. For example, 14 discussing the National Cancer Institute, its 15 primary focus is on research and treatments 16 regarding cancers, not necessarily causes, 17 but it is a funder of basic research in the 18 United States. 19 Health Canada is an 20 organization whose charge is to -- is to 21 synthesize public health-related positions 22 based on evidence and disseminate those to 23 public -- the public through various 24 healthcare organizations or agencies. And</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 94	Page 96
<p>1 for that reason, I think it's important to 2 look at the different focus. 3 Also, the Health Canada report 4 is a more contemporaneous report, which has 5 been based on more recent science than has 6 been considered either by the NCI or some of 7 the other public health organizations. 8 Q. The NCI's most recent update to 9 its publication was January of 2019; is that 10 right? 11 MS. O'DELL: Object to the 12 form. 13 A. It's current in terms of its 14 publication. I don't know that it's January 15 of '19; it may be. But it's still not based 16 on the most recently available literature. 17 BY MR. ZELLERS: 18 Q. But Health Canada is; is that 19 right? 20 A. Health Canada is based on more 21 recent literature than the NCI position. 22 Q. Health Canada and its 23 assessment is based upon the meta-analysis by 24 Taher that we've marked as Exhibit 7; is that</p>	<p>1 very beginning of the public comment period, 2 correct? 3 A. Yes. 4 Q. You agree that Health Canada 5 can take up to two years to either take 6 action or no action at all; is that right? 7 A. I don't know that to be the 8 case, but it very well could be. 9 Q. How did you come to learn of 10 the Health Canada risk assessment? 11 A. I believe the attorneys let me 12 know about it. 13 Q. The attorneys for plaintiffs in 14 this matter that retained you? 15 A. Yes. 16 Q. Were you involved in the Health 17 Canada risk assessment prior to its 18 publication? 19 A. No. 20 Q. Have you submitted any comments 21 to Health Canada? 22 A. Not yet. 23 Q. Do you intend to submit 24 comments to Health Canada?</p>
Page 95	Page 97
<p>1 right? 2 A. It is. 3 MS. O'DELL: Object to the 4 form. 5 BY MR. ZELLERS: 6 Q. You have reviewed that paper 7 and you believe it supports and strengthens 8 your opinions in this case; is that right? 9 A. Yes. 10 Q. Does the National Cancer 11 Institute review the peer-reviewed literature 12 as it relates to risk factors for ovarian 13 cancer? 14 A. They have a number of 15 committees that are set up for that purpose, 16 and it is -- it's a committee approach which 17 is handled by a committee chairperson. The 18 National Cancer Institute itself has some 19 oversight of that process, but they defer to 20 the committee chairs. 21 Q. You understand that the Health 22 Canada assessment is a draft; is that right? 23 A. Yes. 24 Q. You understand that it's at the</p>	<p>1 A. I might. 2 Q. What comments do you intend to 3 submit to Health Canada? 4 A. I haven't formulated them yet. 5 Q. Outside of litigation, do you 6 generally rely on draft assessments by 7 regulatory agencies? 8 MS. O'DELL: Object to the 9 form. 10 A. Yes. 11 BY MR. ZELLERS: 12 Q. Are you familiar with the 13 precautionary principle? 14 A. I am. 15 Q. What is the precautionary 16 principle? 17 A. The precautionary principle 18 states that changes should take place in the 19 face of a potential hazard until that hazard 20 is proved not to exist. It's a general 21 precept that's used in the EU, for example, 22 and very different from the one that operates 23 in this country. 24 Q. The principle in this country</p>

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 98</p> <p>1 is that there needs to be scientific evidence 2 in order to take action; is that right? 3 MS. O'DELL: Object to the 4 form. 5 A. Yes, that's correct. 6 BY MR. ZELLERS: 7 Q. The precautionary principle 8 says even before there's full or complete 9 scientific demonstration of cause and effect, 10 it is appropriate to take a precautionary 11 approach; is that right? 12 A. That's right. 13 Q. The Health Canada follows -- 14 strike that. 15 Health Canada follows and has 16 adopted a precautionary approach; is that 17 right? 18 A. Yes. 19 Q. Please review 20 Deposition Exhibit 14. 21 (Carson Deposition Exhibit 14 22 marked.) 23 BY MR. ZELLERS: 24 Q. Deposition Exhibit 14 is the</p>	<p style="text-align: right;">Page 100</p> <p>1 Did I read that correctly? 2 A. You did. 3 Q. Is that your understanding of 4 what a precautionary approach is? 5 A. Yes. In general, the 6 precautionary principle can be restated that 7 an ounce of prevention is worth a pound of 8 cure. 9 Q. Health Canada does not require 10 a finding of causation such as required in 11 litigation matters in this country, the 12 United States; is that right? 13 A. In order to adopt a document 14 that has a significant effect on general 15 public health practices, no, it does not. 16 Q. The Taher paper, that's another 17 paper that you have reviewed since you 18 published your report; is that right? 19 A. Which paper? I'm sorry. 20 Q. This is what we've marked as 21 Exhibit 7. You brought it with you here 22 today? 23 A. Okay. Yes. 24 Q. You've read the Taher 2018</p>
<p style="text-align: right;">Page 99</p> <p>1 Health Canada Decision-Making Framework for 2 Identifying, Assessing and Managing Health 3 Risk. 4 Do you see that? 5 A. Yes. 6 Q. If you go to page 5 of 7 Exhibit 14 -- 8 MS. O'DELL: Feel free to 9 take -- review the document if you're 10 not familiar with it, Dr. Carson. 11 BY MR. ZELLERS: 12 Q. One of the underlying 13 principles in the Health Canada 14 decision-making framework is use a 15 precautionary approach; is that right? 16 A. That's right. 17 Q. If we go to page 8, Health 18 Canada defines the use of a precautionary 19 approach, and looking at the second sentence: 20 A precautionary approach to decision-making 21 emphasizes the need to take timely and 22 appropriate preventative action, even in the 23 absence of a full scientific demonstration of 24 cause and effect.</p>	<p style="text-align: right;">Page 101</p> <p>1 manuscript; is that right? 2 A. Yes. 3 Q. Where did you obtain that 4 manuscript from? 5 A. This was obtained directly from 6 one of the coauthors on this study to the 7 plaintiffs' attorneys, who passed it along to 8 me. 9 Q. So one of the coauthors on this 10 study gave it to the plaintiffs' counsel, who 11 then gave it to you; is that right? 12 A. That's correct. 13 Q. Who was the author of this 14 publication, Exhibit 7, that provided the 15 paper to plaintiffs' counsel, if you know? 16 A. I don't recall. 17 Q. But one of these authors; is 18 that right? 19 A. It would -- yes. 20 Q. Why did you not include this 21 paper on either your reliance list or your 22 literature list? 23 A. I didn't have it at the time 24 that those were formulated.</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 102	Page 104
<p>1 Q. Did you have access to the</p> <p>2 appendices and supplemental tables that are</p> <p>3 referred to in the Taher 2018 publication</p> <p>4 which we've marked as Exhibit 7?</p> <p>5 A. The ones that are not in</p> <p>6 this -- in this document or --</p> <p>7 Q. Yes.</p> <p>8 A. Those -- I have not thoroughly</p> <p>9 examined those, but I do have access to them.</p> <p>10 Q. How do you have access to those</p> <p>11 appendices and supplemental tables?</p> <p>12 A. They were also provided to me</p> <p>13 by plaintiffs' counsel.</p> <p>14 Q. Has the Taher publication,</p> <p>15 which we've marked as Exhibit 7, been peer</p> <p>16 reviewed?</p> <p>17 A. It's in the process. This is a</p> <p>18 manuscript that's just been accepted for</p> <p>19 publication, so it has gone through peer</p> <p>20 review.</p> <p>21 Q. It has gone through peer</p> <p>22 review --</p> <p>23 A. That's my understanding.</p> <p>24 Q. -- and Exhibit 7 is the article</p>	<p>1 A. Yes, I have.</p> <p>2 Q. Do you know any of the authors</p> <p>3 of this paper, Exhibit 7?</p> <p>4 A. No, I don't.</p> <p>5 Q. Do you know the source of</p> <p>6 funding for this paper?</p> <p>7 A. I -- I think the sources of</p> <p>8 funding are mentioned in here.</p> <p>9 Q. Other than what's mentioned in</p> <p>10 the paper, Exhibit 7, do you have any</p> <p>11 knowledge as to the sources of funding?</p> <p>12 A. There's a combination of</p> <p>13 sources. In part, this work is funded</p> <p>14 through the plaintiffs' attorneys.</p> <p>15 Q. Have you communicated with any</p> <p>16 of the authors of this paper?</p> <p>17 A. No.</p> <p>18 Q. Do you know the credentials of</p> <p>19 any of the authors of this paper?</p> <p>20 A. I haven't investigated that.</p> <p>21 Q. In your epidemiological work</p> <p>22 outside of litigation, do you rely on</p> <p>23 articles that are funded at least in part by</p> <p>24 plaintiffs' counsel in litigation?</p>
Page 103	Page 105
<p>1 that you believe will be published; is that</p> <p>2 right?</p> <p>3 A. This is a -- this is a working</p> <p>4 manuscript which has gone through at least</p> <p>5 part of the peer-review process. There may</p> <p>6 be minor edits that occur to this, but this</p> <p>7 is substantially the final article.</p> <p>8 Q. How do you know that?</p> <p>9 A. That's the general process of</p> <p>10 submitting publications to peer-reviewed</p> <p>11 article -- journals.</p> <p>12 Q. How do you know -- I'm sorry,</p> <p>13 did you finish?</p> <p>14 A. I'm finished.</p> <p>15 Q. How did you know the status of</p> <p>16 the peer-review process with respect to</p> <p>17 Exhibit 7?</p> <p>18 A. Because it's been accepted for</p> <p>19 publication.</p> <p>20 Q. How do you know that?</p> <p>21 A. That, I was told by the</p> <p>22 plaintiffs' attorneys.</p> <p>23 Q. And you've accepted that; is</p> <p>24 that right?</p>	<p>1 A. If the articles represent good</p> <p>2 science, I don't really pay much attention or</p> <p>3 worry about the funding source.</p> <p>4 Q. Do you know what conflicts of</p> <p>5 interest any of the authors have?</p> <p>6 A. I don't know specifically. I</p> <p>7 can't recall if they're outlined in here.</p> <p>8 But the -- those are also evaluated based on</p> <p>9 the peer-review process.</p> <p>10 Q. Do you know whether some of the</p> <p>11 authors are serving as consultants to</p> <p>12 plaintiffs' counsel in this litigation?</p> <p>13 A. I know that -- no, I don't know</p> <p>14 that. Excuse me, I gave an incorrect answer.</p> <p>15 Q. Sure. Correct it, please.</p> <p>16 A. I mentioned that part of the</p> <p>17 funding for this research came from</p> <p>18 plaintiffs' counsel, and I'm not -- I don't</p> <p>19 know that that's the case. I was thinking of</p> <p>20 another research report when I said that.</p> <p>21 Q. Do you know whether or not, at</p> <p>22 least in part, funding for this paper, the</p> <p>23 Taher paper, came from plaintiffs' counsel?</p> <p>24 A. No, I don't.</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 106	Page 108
<p>1 Q. Taher, this paper, Exhibit 7, 2 concludes that asbestos contamination does 3 not explain ovarian cancer, correct? 4 A. It does come to that general 5 conclusion. 6 Q. That's a different conclusion 7 than you have formulated in this matter; is 8 that right? 9 A. No, it's not. 10 Q. You agree that asbestos 11 contamination does not explain ovarian 12 cancer; is that right? 13 A. It doesn't completely explain 14 ovarian cancer. 15 Q. Does it explain ovarian cancer? 16 MS. O'DELL: Objection, asked 17 and answered. 18 A. I -- I don't believe it 19 completely explains ovarian cancer, no. 20 BY MR. ZELLERS: 21 Q. Turn to page 41 of Exhibit 7. 22 Look at the last three lines of the paper. 23 The authors of the Taher publication state: 24 The similarity of findings between studies</p>	<p>1 factors is consistency; is that right? 2 A. Yes. 3 Q. You, in fact, are opining in 4 this case that there is consistency among the 5 talcum powder ovarian cancer studies and 6 publications; is that right? 7 A. Yes. 8 Q. The authors of the Taher paper 9 disagree with that conclusion; is that right? 10 MS. O'DELL: Object to the 11 form. 12 A. I don't think they disagree 13 with that. 14 BY MR. ZELLERS: 15 Q. Turn to page 25, Table 2. This 16 is, again, something that you have reviewed 17 in preparation for your deposition; is that 18 right? 19 A. Well, I didn't review it in 20 preparation for the deposition, but I've 21 reviewed it recently. 22 Q. At the request of plaintiffs' 23 counsel, correct? 24 A. Yes.</p>
Page 107	Page 109
<p>1 published prior to and after this point 2 suggest asbestos contamination does not 3 explain the positive association between 4 perineal use of talc powder and the risk of 5 ovarian cancer. 6 Did I correctly state their 7 conclusion? 8 A. Well, there was a final clause 9 of the sentence, but yes, you correctly read 10 that. 11 Q. The Taher authors also 12 discussed the lack of consistency among the 13 various talcum powder studies; is that right? 14 MS. O'DELL: Object to the 15 form. 16 A. I'm sorry, could you repeat 17 that question? 18 BY MR. ZELLERS: 19 Q. Sure. 20 You looked at the Bradford Hill 21 factors in formulating your opinion; is that 22 right? 23 A. Yes. 24 Q. One of the Bradford Hill</p>	<p>1 Q. Table 2 is a summary of 2 evidence for each of the Hill criteria of 3 causation as applied to perineal application 4 of talc and ovarian cancer. 5 Do you see that? 6 A. Yes. 7 Q. Under Consistency, they state 8 that 15 out of 30 studies reported positive 9 and significant associations; is that right? 10 A. Yes. 11 Q. 15 out of 30, that's 50%, 12 right? 13 A. Yes. 14 Q. 50% is no better than a coin 15 toss; is that right? 16 MS. O'DELL: Object to the 17 form. 18 A. Well, I would have to also 19 mention that the majority of those 30 studies 20 found positive associations. These are the 21 ones that showed positive associations that 22 rose to the level of statistical 23 significance. 24 ///</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 110	Page 112
<p>1 BY MR. ZELLERS:</p> <p>2 Q. If an association is not</p> <p>3 statistically significant, then it can be due</p> <p>4 to chance; is that right?</p> <p>5 A. But if it's due to chance over</p> <p>6 and over and over again, and you keep getting</p> <p>7 a positive association, that argues very</p> <p>8 strongly against the chance as being the only</p> <p>9 factor.</p> <p>10 Q. Can you answer my question: A</p> <p>11 lack of a statistically significant</p> <p>12 association is consistent with or can be</p> <p>13 consistent with no risk, correct?</p> <p>14 MS. O'DELL: Objection to form,</p> <p>15 asked and answered.</p> <p>16 A. If you're referring to an</p> <p>17 individual study, that might be the case;</p> <p>18 however, when considering the Bradford Hill</p> <p>19 criterion of consistency, you look at the</p> <p>20 overall body of the literature and what it</p> <p>21 tells you.</p> <p>22 There's an obvious statistical</p> <p>23 trend toward positive connection between</p> <p>24 talcum powder perineal application and the</p>	<p>1 studies that have shown a biological gradient</p> <p>2 at -- especially in relation to some of the</p> <p>3 subtypes of ovarian cancer.</p> <p>4 BY MR. ZELLERS:</p> <p>5 Q. And I'm going to ask you about</p> <p>6 those questions, but right now I'm just</p> <p>7 asking you about the Taher paper.</p> <p>8 A. Well, I'm trying to just</p> <p>9 completely answer your question.</p> <p>10 Q. I'm asking you about the Taher</p> <p>11 paper. You understand?</p> <p>12 A. Yes. This is all from the</p> <p>13 Taher paper that I read you.</p> <p>14 Q. Section 3.3.1 talks about</p> <p>15 evidence from human studies. That's on</p> <p>16 page 20; is that right?</p> <p>17 A. Yes.</p> <p>18 Q. This section talks about</p> <p>19 whether or not there is a consistent</p> <p>20 dose-response found in those studies; is that</p> <p>21 right?</p> <p>22 MS. O'DELL: What sentence are</p> <p>23 you pointing to?</p> <p>24 MR. ZELLERS: I'm asking the</p>
Page 111	Page 113
<p>1 occurrence of ovarian cancer, and the more</p> <p>2 evidence that mounts, the more strongly that</p> <p>3 association is proven.</p> <p>4 BY MR. ZELLERS:</p> <p>5 Q. Would you say that 15 out of 30</p> <p>6 means there are consistent results across</p> <p>7 studies?</p> <p>8 A. I think I've just explained to</p> <p>9 you how I believe there are consistent</p> <p>10 results across studies.</p> <p>11 Q. The authors of the Taher paper</p> <p>12 also conclude that they do not find a</p> <p>13 consistent dose-response in the papers that</p> <p>14 look at perineal application of talc and</p> <p>15 ovarian cancer; is that right?</p> <p>16 MS. O'DELL: Object to the</p> <p>17 form.</p> <p>18 A. Well, what they actually say is</p> <p>19 that about half of the epidemiological</p> <p>20 studies assess only one level of talc</p> <p>21 exposure, ever versus never. So it's not</p> <p>22 possible from those studies to establish a</p> <p>23 biological gradient.</p> <p>24 However, there are a number of</p>	<p>1 doctor questions based upon his review</p> <p>2 of the paper, Ms. O'Dell.</p> <p>3 MS. O'DELL: Okay. Feel free</p> <p>4 to review it, Doctor, if you need to.</p> <p>5 THE WITNESS: I'm just taking a</p> <p>6 look at this section.</p> <p>7 BY MR. ZELLERS:</p> <p>8 Q. And if it helps you, look on</p> <p>9 page 21, lines 174 through 177.</p> <p>10 (Document review.)</p> <p>11 BY MR. ZELLERS:</p> <p>12 Q. I only want to ask you about</p> <p>13 two sentences. Are you ready for me to ask</p> <p>14 you my question?</p> <p>15 A. Just one moment, please.</p> <p>16 Q. Sure.</p> <p>17 (Document review.)</p> <p>18 THE WITNESS: All right, I'm</p> <p>19 ready for your question.</p> <p>20 BY MR. ZELLERS:</p> <p>21 Q. The Taher paper states that</p> <p>22 many of the studies only reported on the</p> <p>23 ovarian cancer risk assessing one exposure</p> <p>24 category and that exposure response analyses</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 114	Page 116
<p>1 were not done in all studies; is that right?</p> <p>2 A. Yes.</p> <p>3 Q. When conducted, findings from</p> <p>4 trend analyses were not consistent; is that</p> <p>5 correct?</p> <p>6 MS. O'DELL: Object to the</p> <p>7 form.</p> <p>8 A. Yes.</p> <p>9 BY MR. ZELLERS:</p> <p>10 Q. All right. With respect -- I'm</p> <p>11 done with that paper.</p> <p>12 You discuss your opinion</p> <p>13 number 1 on page 7 of your report; is that</p> <p>14 right?</p> <p>15 A. Yes.</p> <p>16 Q. You first state on page 7 that</p> <p>17 you believe talcum powder is immunogenic and</p> <p>18 produces chronic inflammation in the tissues;</p> <p>19 is that right?</p> <p>20 A. Yes.</p> <p>21 Q. You state that other components</p> <p>22 in talcum powder, including mineral fibers,</p> <p>23 asbestos, fibrous talc, carcinogenic metals</p> <p>24 and other chemicals intensify the</p>	<p>1 inflammation in the tissues in which it</p> <p>2 sequesters; is that right?</p> <p>3 A. Yes.</p> <p>4 Q. Assuming for the moment that</p> <p>5 talc can reach the ovaries, is it your</p> <p>6 opinion that talc produces chronic</p> <p>7 inflammation in the ovaries and that this</p> <p>8 somehow leads to ovarian cancer?</p> <p>9 A. It is my opinion that talc</p> <p>10 produces chronic inflammation in the</p> <p>11 epithelial tissues of the ovaries and</p> <p>12 surrounding epithelial tissues and leads to</p> <p>13 both carcinogenesis initiation and promotion.</p> <p>14 Q. There are no reports in the</p> <p>15 literature of externally applied talc leading</p> <p>16 to inflammation, granulomas, fibrosis or</p> <p>17 adhesions anywhere along a woman's</p> <p>18 reproductive tract, correct?</p> <p>19 MS. O'DELL: Object to the</p> <p>20 form, asked and answered.</p> <p>21 A. Well, that's similar to the</p> <p>22 question that you asked earlier, and although</p> <p>23 I'm not aware of experimental reports that</p> <p>24 specifically jive with that condition,</p>
Page 115	Page 117
<p>1 inflammatory response and stimulate cell</p> <p>2 growth and proliferation; is that right?</p> <p>3 A. Yes.</p> <p>4 Q. Other than asbestos, what</p> <p>5 mineral fibers in talc intensify the</p> <p>6 inflammatory response?</p> <p>7 A. Well, the endogenous fibrous</p> <p>8 talc fibers also intensify the response.</p> <p>9 Q. Other than asbestos and fibrous</p> <p>10 talc fibers, what mineral fibers in talc do</p> <p>11 you believe intensify the inflammatory</p> <p>12 response?</p> <p>13 A. I'm not really able to answer</p> <p>14 that question because I don't have a specific</p> <p>15 opinion about it. I'm not a geologist.</p> <p>16 Q. Are the other chemicals that</p> <p>17 you refer to in this section fragrance</p> <p>18 chemicals?</p> <p>19 A. Yes.</p> <p>20 Q. Any others?</p> <p>21 A. None that are intentionally</p> <p>22 added.</p> <p>23 Q. You claim, again on page 7,</p> <p>24 that talcum powder produces chronic</p>	<p>1 certainly there are a lot of theoretical</p> <p>2 reports that have been published.</p> <p>3 For example, Dr. Ness' article</p> <p>4 from '99 lays out the theory of inflammation</p> <p>5 and relates that to talc exposure from</p> <p>6 perineal application.</p> <p>7 BY MR. ZELLERS:</p> <p>8 Q. This is your colleague,</p> <p>9 Dr. Ness; is that right?</p> <p>10 A. Ness, and Coussens, when she</p> <p>11 was at Pittsburgh.</p> <p>12 Q. Dr. Ness, you showed her your</p> <p>13 report and asked for her comments; is that</p> <p>14 right?</p> <p>15 A. I didn't show her the report.</p> <p>16 Q. Well, you talked to her about</p> <p>17 and showed her your conclusions and your</p> <p>18 opinions; is that right?</p> <p>19 A. No, I talked to her about the</p> <p>20 paper.</p> <p>21 Q. Her paper?</p> <p>22 A. Yes.</p> <p>23 Q. Did you share with her that you</p> <p>24 were going to be an expert for the plaintiffs</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 118	Page 120
<p>1 in this litigation?</p> <p>2 A. No, I didn't.</p> <p>3 Q. Did she wonder or ask why it</p> <p>4 was that you were researching or looking into</p> <p>5 this issue?</p> <p>6 A. She -- I think she may have,</p> <p>7 yeah.</p> <p>8 Q. And what did you tell her?</p> <p>9 A. I told her I had been recently</p> <p>10 asked to look into it.</p> <p>11 Q. Did you tell her that you'd</p> <p>12 been asked to look into it by counsel for</p> <p>13 plaintiffs in the talc litigation?</p> <p>14 A. No, I didn't.</p> <p>15 Q. And that never came up; is that</p> <p>16 right?</p> <p>17 A. It didn't.</p> <p>18 Q. And she never talked to you or</p> <p>19 told you about her experience and her work as</p> <p>20 counsel -- strike that, as an expert for</p> <p>21 plaintiffs; is that your testimony?</p> <p>22 A. Yes. It was a very brief</p> <p>23 conversation.</p> <p>24 Q. If up to 50% of all U.S. women</p>	<p>1 talc relating to that, and to my knowledge,</p> <p>2 there are no experimental reports or case</p> <p>3 reports that can document that at the current</p> <p>4 time.</p> <p>5 Q. Granulomas, fibrosis and</p> <p>6 adhesions do not cause ovarian cancer,</p> <p>7 correct?</p> <p>8 MS. O'DELL: Object to the</p> <p>9 form.</p> <p>10 A. The inflammatory process that</p> <p>11 is intimately connected with granuloma</p> <p>12 formation may well be the same process that</p> <p>13 results in mutation and promotion of ovarian</p> <p>14 cancer. So I -- I could not agree completely</p> <p>15 with your statement.</p> <p>16 BY MR. ZELLERS:</p> <p>17 Q. Is there a good scientific</p> <p>18 basis today to opine that granulomas,</p> <p>19 fibrosis or adhesions cause ovarian cancer?</p> <p>20 MS. O'DELL: Object to the</p> <p>21 form.</p> <p>22 A. No, I don't think they cause</p> <p>23 ovarian cancer.</p> <p>24 ///</p>
Page 119	Page 121
<p>1 have used genital talc, shouldn't there be</p> <p>2 studies which have shown inflammation,</p> <p>3 granulomas, fibrosis or adhesions in a</p> <p>4 woman's reproductive tract?</p> <p>5 MS. O'DELL: Object to the</p> <p>6 form.</p> <p>7 A. Well, there are studies that</p> <p>8 show those things.</p> <p>9 BY MR. ZELLERS:</p> <p>10 Q. Please, tell me the published</p> <p>11 studies that demonstrate inflammation,</p> <p>12 granulomas, fibrosis or adhesions in a</p> <p>13 woman's reproductive tract from externally</p> <p>14 applied talc?</p> <p>15 A. Well, you're adding a new</p> <p>16 condition now.</p> <p>17 Q. I'm sorry if I didn't add that</p> <p>18 before.</p> <p>19 A. There are multiple studies that</p> <p>20 show inflammation and other inflammatory</p> <p>21 reactions in connection with the occurrence</p> <p>22 of ovarian cancer.</p> <p>23 The piece that you're now</p> <p>24 asking for is the external application of</p>	<p>1 BY MR. ZELLERS:</p> <p>2 Q. Would you agree that not all</p> <p>3 inflammatory conditions lead to cancer?</p> <p>4 A. Yes.</p> <p>5 Q. It's true that all of us</p> <p>6 experience inflammatory reactions of one sort</p> <p>7 or another, including chronic conditions,</p> <p>8 that do not lead to cancer, correct?</p> <p>9 A. That's correct. Although there</p> <p>10 is a strong relationship between inflammatory</p> <p>11 processes and the occurrence of cancers, and</p> <p>12 some of those inflammatory diseases that</p> <p>13 you're referring to also have associations</p> <p>14 with increased rates of cancers.</p> <p>15 MR. ZELLERS: Move to strike as</p> <p>16 nonresponsive.</p> <p>17 BY MR. ZELLERS:</p> <p>18 Q. Rheumatoid arthritis is an</p> <p>19 inflammatory condition; is that right?</p> <p>20 A. Yes, it is.</p> <p>21 Q. Does it increase the risk of</p> <p>22 ovarian cancer?</p> <p>23 A. I think I -- it does -- it's</p> <p>24 not associated with ovarian cancer, but I</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 122	Page 124
<p>1 think it may be associated with other 2 cancers. 3 Q. Does -- strike that. 4 Is psoriasis an inflammatory 5 condition? 6 A. Generally, it is. 7 Q. Is it associated with an 8 increased risk of ovarian cancer? 9 A. Not that I'm aware. 10 Q. In your report you state that 11 inflammation is a normal body process that 12 leads to the thwarting of infection and rapid 13 healing; is that right? 14 A. That's correct. 15 Q. If your inflammation theory is 16 correct, why doesn't inflammation generally, 17 such as in pelvic inflammatory disease, cause 18 ovarian cancer? 19 A. It may do so. 20 Q. You are opining under oath here 21 that pelvic inflammatory disease causes 22 ovarian cancer? 23 A. I think there are experts who 24 have concluded that.</p>	<p>1 A. This is a list that I've put 2 together of some of the studies I've 3 considered and how they relate to things I 4 might testify to today. 5 Q. Why did you not tell me about 6 your list that you brought with you today 7 before now? 8 A. Well, I'm telling you about it 9 now. 10 Q. My question is why did you not, 11 when I asked you what you brought to the 12 deposition today, not take the list out and 13 show us the list? 14 A. I didn't think of it. 15 Q. Okay. We'll mark your list as 16 Deposition Exhibit 15. 17 (Carson Deposition Exhibit 15 18 marked.) 19 BY MR. ZELLERS: 20 Q. These are a number of notes, 21 four pages of notes. Are these all your 22 notes? 23 A. Yes. 24 Q. First page has got a section of</p>
Page 123	Page 125
<p>1 Q. What study are you relying on 2 for that opinion or statement? 3 A. That's not part of the opinions 4 that I've been asked to consider in this -- 5 in this case. 6 Q. As you sit here, can you cite 7 me a publication or a study that finds that 8 pelvic inflammatory disease causes ovarian 9 cancer? 10 MS. O'DELL: Object to the 11 form. 12 A. Well, I have -- I have a list 13 of studies that relate inflammation to 14 ovarian cancer and other cancers. 15 BY MR. ZELLERS: 16 Q. Can you name me a study or a 17 publication? 18 A. Okay. I think I have my list 19 here. 20 Q. You brought other materials 21 with you? 22 A. I brought this list. 23 Q. All right. Well, what list are 24 you pulling out of your pocket?</p>	<p>1 articles on asbestos and ovarian cancer; is 2 that right? 3 A. Yes. 4 Q. It also has inflammation and 5 cancer and a number of studies; is that 6 right? 7 A. Yes. 8 Q. Second page has got cohort, 9 where you've listed out the four cohort 10 studies; is that right? 11 A. Yes. 12 Q. Beneath that are the 13 meta-analyses where you've listed those out 14 and made some notes on those, correct? 15 A. Yes. 16 Q. The back page of the second 17 page has got a listing of a number of the 18 case-control studies, correct? 19 A. Yes. Those are duplicated on 20 another page. 21 Q. The third page has got a 22 section on migration and studies that you're 23 looking at for that proposition, correct? 24 A. Correct.</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 126	Page 128
<p>1 Q. Underneath that, ovarian cancer 2 risk; is that right? 3 A. Yes. 4 Q. Underneath that, talc and other 5 cancer; is that right? 6 A. Yes. 7 Q. And then on the last page, 8 page 4, is a listing of the case-control 9 studies with the odds ratios and confidence 10 intervals; is that right? 11 A. For the most part, yes. 12 Q. All right. So looking now at 13 your list of studies that you have prepared, 14 which study demonstrates or supports the 15 proposition that pelvic inflammatory disease 16 causes ovarian cancer? 17 A. Looking through here, I don't 18 have that item specifically in my notes, but 19 I'm just using my notes to refresh my memory 20 about the individual research report. I 21 think the Coussens and Werb paper from 2010 22 talks about general mechanisms of 23 inflammation in relation to the occurrence of 24 ovarian cancer.</p>	<p>1 authors conclude that pelvic inflammatory 2 disease causes ovarian cancer? Do you 3 believe each of the authors in the studies 4 that you've identified, that their studies 5 stand for that proposition? 6 MS. O'DELL: Object to form, 7 asked and answered. 8 A. I think all of the studies that 9 I've identified for this question do allude 10 to that, yes. 11 BY MR. ZELLERS: 12 Q. That pelvic inflammatory 13 disease causes ovarian cancer, correct? 14 A. That it is a -- it's a factor, 15 yes. 16 Q. It's a cause. That's what they 17 state in those papers, right? 18 MS. O'DELL: Object to the 19 form. 20 BY MR. ZELLERS: 21 Q. That's your testimony? 22 MS. O'DELL: Excuse me, 23 misstates his testimony. Object to 24 the form.</p>
Page 127	Page 129
<p>1 And there's the Ness and 2 Cottreau paper from '99. 3 Okada has discussed it in the 4 2007 paper. And there's a paper from 2001 5 which is Balkwill and Mantovani which 6 discusses the relationship between talc and 7 ovarian cancer and also discusses the 8 relationship to other sources of 9 inflammation. 10 Q. Each of those papers that 11 you've identified you believe state that 12 pelvic inflammatory disease is a cause of 13 ovarian cancer, correct? 14 MS. O'DELL: Object to the 15 form. 16 A. Well, I don't think they state 17 that in so many words, but if you read the 18 paper and you understand that -- what pelvic 19 inflammatory disease is and its relationship 20 to inflammatory processes in general, yes, 21 that's what they're saying. 22 BY MR. ZELLERS: 23 Q. Doctor, my question to you was: 24 Are you aware of any papers in which the</p>	<p>1 A. I would say it's a factor and 2 leave it at that. 3 BY MR. ZELLERS: 4 Q. All right. Are you familiar 5 with pleurodesis? 6 A. I am. 7 Q. Does a pleurodesis cause 8 cancer? 9 A. It is not known to, although it 10 might. 11 Q. Are you familiar with the 12 study, 1979, A survey of the long-term 13 effects of talc and kaolin pleurodesis? 14 A. Can tell me who the author of 15 that was? 16 Q. Sure. The author is -- this is 17 from the Research Committee of the British 18 Thoracic Association. The members of the 19 subcommittee were Chappell, Johnson, Charles, 20 Wagner, Seal, Berry and Nicholson. 21 Are you familiar with that 22 paper? 23 A. I'm not familiar with the 24 paper. I may have looked at it in the past.</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 130	Page 132
<p>1 Q. We'll take a look at it. We'll 2 mark it as Deposition Exhibit 16. 3 (Carson Deposition Exhibit 16 4 marked.) 5 A. Thank you. 6 MS. O'DELL: Thank you. 7 BY MR. ZELLERS: 8 Q. This was a study that looked at 9 the association between pleurodesis and lung 10 cancer; is that right? 11 A. Yes. 12 Q. It's a study that you cite on 13 page 1 of your literature list; is that 14 right? 15 A. Okay. Yes. 16 Q. So you've read it; is that 17 right? 18 A. I have. 19 Q. You've considered it; is that 20 right? 21 A. Yes. 22 Q. They looked at 210 patients 23 that underwent a pleurodesis with talc or 24 kaolin 14 to 40 years before; is that right?</p>	<p>1 form. 2 A. I think that was the hypothesis 3 of those research reports. 4 BY MR. ZELLERS: 5 Q. And, in fact, the NSAID studies 6 do not find a consistent causal reduction in 7 the risk of ovarian cancer; is that right? 8 A. I think that's correct. 9 Q. In your report you also state 10 that studies show that use of cornstarch 11 instead of talcum powder reduces the risk of 12 ovarian cancer; is that right? 13 A. Yes. 14 Q. If inflammation causes cancer, 15 why would cornstarch be a superior 16 alternative to talc? 17 A. The reason is that cornstarch, 18 being a biological product, is much -- it 19 does have a rapid clearance from the body, 20 even when sequestered, in comparison with a 21 mineral substance like talc. 22 Q. Well, in fact, cornstarch 23 causes or increases the risk of inflammation, 24 granulomas, fibrosis and adhesions, correct?</p>
Page 131	Page 133
<p>1 A. That's correct. 2 Q. And they found that there was 3 no increased incidence of lung cancer and no 4 cases of mesothelioma; is that right? 5 A. That's correct. 6 Q. Why don't -- well, strike that. 7 You're aware of the studies 8 that have looked at antiinflammatory drugs 9 and aspirin use with respect to whether or 10 not they're associated with -- let me 11 withdraw that. 12 Are you familiar with the NSAID 13 and aspirin use studies relating to the 14 incidence of ovarian cancer in chronic users? 15 A. I'm familiar with some of 16 those, yes. 17 Q. If your theory is correct that 18 inflammation causes ovarian cancer, then you 19 would expect that the studies of NSAIDs and 20 aspirin use, antiinflammatory drugs that 21 reduce inflammation, would consistently 22 reduce the incidence of ovarian cancer, 23 correct? 24 MS. O'DELL: Object to the</p>	<p>1 A. It may, yes. 2 Q. Just like you claim talcum 3 powder increases the risk of inflammation, 4 granulomas, fibrosis and adhesions; is that 5 right? 6 MS. O'DELL: Object to the 7 form. 8 A. I think you are -- you're 9 parsing terms here. That list of things were 10 your words. I was agreeing with the 11 relationship between talc and inflammation in 12 ovarian epithelial tissue and the production 13 or granulomas. I did not discuss the 14 relationship between talc and adhesions or 15 fibrosis. There was one other thing on your 16 list. 17 BY MR. ZELLERS: 18 Q. Well, in fact, the FDA has 19 banned the use of cornstarch as a powder for 20 lubricating surgical gloves; is that right? 21 A. It has, but that's not the 22 reason. 23 Q. Well, the reason that they 24 banned the use of cornstarch is because it</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 134	Page 136
<p>1 presented an unreasonable and substantial 2 risk of illness or injury and that that risk 3 cannot be corrected or eliminated by 4 labeling, correct? 5 A. I don't know the specific 6 language. It looks like you're reading from 7 a Federal Register document. 8 The main reason that cornstarch 9 has been banned as a lubricant in gloves is 10 because of the potential for transmission of 11 primarily respiratory problems through 12 inhalation, mostly by co-workers, not by 13 patients. 14 Q. You do agree that cornstarch 15 has been banned by the FDA for use in 16 surgical gloves; is that right? 17 A. All powdered gloves have been 18 essentially banned from hospitals and 19 operating rooms now. 20 Q. You also talk about 21 inflammation and oxidative stress; is that 22 right? 23 A. Yes. 24 Q. Does the presence of oxidative</p>	<p>1 Q. Why do you have to have a 2 special definition of "oxidative stress"? 3 I'm asking simply: Is there a publication or 4 a study which documents that oxidative stress 5 is involved in the development of ovarian 6 cancer? 7 MS. O'DELL: Object to the 8 form. 9 A. Sure. 10 BY MR. ZELLERS: 11 Q. And what paper are you going to 12 point me to? 13 A. Well, I'll point you to the 14 Ness paper to begin with, because it was one 15 of the earlier papers that related oxidative 16 stress from talc to the occurrence of ovarian 17 cancer. But the relationship between 18 inflammation, which essentially is the source 19 of the oxidative stress, and cancer goes all 20 the way back into the 19th Century in terms 21 of its proposal as a rationale. 22 Q. Is oxidative stress a variation 23 of inflammation as you're using that term 24 relating to a potential cause of ovarian</p>
Page 135	Page 137
<p>1 stress in a tissue indicate that cancer will 2 develop in that tissue? 3 A. No. 4 Q. If exposure to a substance 5 causes oxidative stress in certain tissue, 6 does that mean exposure of all other tissues 7 to that substance will cause oxidative stress 8 in those tissues? 9 A. Not necessarily. 10 Q. Does the body have protective 11 mechanisms that can limit tissue damage from 12 oxidative stress? 13 A. Yes. 14 Q. Do all substances that cause 15 oxidative stress also cause cancer? 16 A. I'm not sure the answer to that 17 question is known. 18 Q. Are there any studies or 19 publications that indicate that oxidative 20 stress is involved in the development of 21 ovarian cancer? 22 A. If I can define the term 23 "oxidative stress," I could give you an 24 answer to that, that question.</p>	<p>1 cancer? 2 A. It's a component of 3 inflammation. 4 Q. As a toxicologist, how would 5 you define fibrous talc? 6 A. Fibrous talc is a form of talc 7 that is conformed into elongated structures 8 that have an aspect ratio of length greater 9 than width that is different from the 10 majority of talc which is the platy form. 11 Q. Do you consider yourself to be 12 an expert on fibrous talc? 13 A. No, I don't. 14 Q. Do you consider yourself to be 15 an expert on oxidative stress? 16 A. I have dealt a lot with issues 17 of oxidative stress and health effects 18 resulting from it. 19 Q. Do you consider yourself to be 20 an expert in oxidative stress? 21 MS. O'DELL: Objection, asked 22 and answered. 23 A. I'm not a specific expert in 24 oxidative stress, but I can -- I can opine</p>

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 138</p> <p>1 regarding my professional understanding and 2 training. 3 BY MR. ZELLERS: 4 Q. You've never been involved in 5 terms of any research or publication on the 6 subject of oxidative stress and any 7 association with ovarian cancer, correct? 8 A. Not in terms of ovarian cancer, 9 no. 10 Q. You have not been involved in 11 any research or publication relating to the 12 subject of inflammation and its association 13 with ovarian cancer, correct? 14 A. No. All right. Yes, correct. 15 Q. Yes, it is correct? Okay. 16 You claim that the presence of 17 asbestos and fibrous talc further intensifies 18 the carcinogenic effect of talc; is that 19 right? 20 A. Yes. 21 Q. Is that statement different 22 from the statement directly above where you 23 allege that asbestos and mineral fibers 24 intensify the inflammatory response and</p>	<p style="text-align: right;">Page 140</p> <p>1 reports, the epidemiology first, is looking 2 at the relationship between perineal use of 3 dusting powders, talcum powders and ovarian 4 cancer. 5 Although there have been 6 efforts in some of those studies to 7 characterize the proportion or the 8 ingredients that would be either asbestos or 9 fibers, that's not done in all cases, and 10 it's not ruled out in any cases. 11 The -- also, the research 12 studies that have been performed, the 13 testing, for example, of the products 14 themselves are replete with reports of 15 components of these powders that are fibrous 16 in nature. 17 MR. ZELLERS: Move to strike as 18 nonresponsive. 19 BY MR. ZELLERS: 20 Q. Do you believe that all talcum 21 powder products that are on the market 22 contain asbestos? 23 MS. O'DELL: Object to the 24 form.</p>
<p style="text-align: right;">Page 139</p> <p>1 stimulate the cell growth and proliferation? 2 A. It's not different, no. 3 Q. Are your opinions dependent on 4 talc containing carcinogenic asbestos and/or 5 fibrous talc? 6 A. No. 7 Q. Do you believe that talcum 8 powder without asbestos causes ovarian 9 cancer? 10 A. I believe talcum powder causes 11 ovarian cancer. I have not seen any research 12 done on talcum powder that has been shown not 13 to contain asbestos. 14 Q. Your assumption that you have 15 made in formulating your opinions here is 16 that talcum powder contains asbestos; is that 17 right? 18 A. No. 19 Q. What assumption have you made 20 as to whether or not talcum powder contains 21 either asbestos or fibrous talc? 22 MS. O'DELL: Object to the 23 form. 24 A. Looking at the research</p>	<p style="text-align: right;">Page 141</p> <p>1 A. I don't know. 2 BY MR. ZELLERS: 3 Q. Does it matter to your opinion 4 as to whether or not the talcum powder 5 products, and particularly the talcum powder 6 products involved in this case, contain 7 asbestos? 8 A. I wouldn't have a way to be 9 able to answer that yes or no. 10 Q. Do you -- strike that. 11 Have you reached a conclusion 12 as to whether or not the talcum powder 13 products involved in this case contain 14 fibrous talc? 15 A. I think that most of them do. 16 Q. Does all of the talcum powder 17 contain fibrous talc or just some of it? 18 A. Certainly a lot of it does. 19 Q. The basis for your conclusion 20 that the talcum powder at issue in this case 21 contains fibrous talc is the testing reports 22 that plaintiffs' attorneys gave you? 23 MS. O'DELL: Object to the 24 form.</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 142	Page 144
<p>1 A. Yes. Also Longo's publications 2 and reports. 3 BY MR. ZELLERS: 4 Q. You have reviewed the Longo 5 reports; is that right? 6 A. Yes. 7 Q. Have you ever met with him? 8 A. No. 9 Q. Do you know his qualifications? 10 A. I looked at his qualifications 11 at one point, but I don't recall exactly what 12 it is at this stage. 13 Q. Ever hear of him before this 14 lawsuit, your getting involved in the talc 15 litigation back in October of 2018? 16 A. No. 17 Q. Have you reviewed any of 18 Longo's testing where he did not find 19 asbestos? 20 A. I -- the only thing I've 21 reviewed are what's present in those reports 22 that I cited. 23 Q. Were you provided by counsel 24 for plaintiffs with any testing reports from</p>	<p>1 MS. O'DELL: Object to the 2 form. 3 A. That wasn't my charge. I defer 4 to the other experts in this case. 5 BY MR. ZELLERS: 6 Q. Do you have an opinion on what 7 type of asbestos you believe is in the talcum 8 powder products at issue in this case? 9 A. Well, there have been various 10 types shown, but I think for the most part 11 it's tremolite and anthophyllite. 12 Q. Are you familiar with 13 crocidolite? 14 A. Yes. 15 Q. Is crocidolite found in talcum 16 powder or baby powder? 17 A. It's not commonly found in it. 18 Q. You believe that the 19 asbestos -- types of asbestos that may be in 20 the talcum powder at issue in this case is 21 tremolite and acidolite [sic]? 22 MS. O'DELL: Objection. 23 A. Anthophyllite. There are 24 others found, but you asked for most common.</p>
Page 143	Page 145
<p>1 Longo where he did not find asbestos? 2 A. There are some of those listed 3 in his reports. 4 Q. Have you reviewed the FDA's 5 testing of talcum powder products? 6 A. The FDA didn't really do much 7 testing of talcum powder products. 8 Q. Have you reviewed the FDA's 9 testing of talcum powder products? 10 MS. O'DELL: Objection, vague. 11 A. The only FDA testing that I 12 looked at was the -- I have it referenced in 13 my list, but the FDA, based on a 14 recommendation, requested samples from 15 various companies, I think nine different 16 sources of talc. They received four and 17 tested those. And based on their test method 18 determined that there was not a -- not 19 evidence of a significant hazard. 20 BY MR. ZELLERS: 21 Q. Have you made any effort to 22 quantify the amount of any alleged 23 contaminant in the Johnson & Johnson Consumer 24 talcum powder?</p>	<p>1 BY MR. ZELLERS: 2 Q. Most common you believe are 3 tremolite and anthophyllite? 4 A. Anthophyllite. 5 Q. Anthophyllite. Those two; is 6 that right? 7 A. Yes. 8 Q. What types of asbestos are 9 associated with ovarian cancer? 10 A. Well, I'll go back to my list 11 again. Crocidolite is associated with 12 ovarian cancer in the Acheson report from 13 1982, which was from female gas mask 14 manufacturers in England who made gas masks 15 during the period of the Second World War, 16 and crocidolite is associated with that with 17 a fairly high relative risk of 2.96. 18 Chrysotile asbestos had also a positive 19 relative risk of 1.74. 20 There was a study of factory 21 workers and pipe laggers in east London, 22 which is the Berry report from 2000, that 23 showed a relative risk of 2.53, and those 24 workers were exposed to primarily asbestos</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 146	Page 148
<p>1 cement products and plasters, so the --</p> <p>2 Q. What type of asbestos, if you</p> <p>3 know?</p> <p>4 A. That would have been primarily</p> <p>5 amphibole asbestos types, which would include</p> <p>6 crocidolite and tremolite and anthophyllite,</p> <p>7 amosite is in that category.</p> <p>8 Bertolotti in 2008 published a</p> <p>9 report -- actually, there were several</p> <p>10 reports that resulted from the Eternit</p> <p>11 factory studies in Casale Monferrato in</p> <p>12 Italy, which was a plant that manufactured</p> <p>13 cement sheet and corrugated tubing, and there</p> <p>14 were a number of studies that showed elevated</p> <p>15 relative risks in persons exposed to asbestos</p> <p>16 in that work, and that would also have been</p> <p>17 amphibole asbestos types.</p> <p>18 Q. The studies that you've recited</p> <p>19 for us, those are all occupational studies;</p> <p>20 is that right?</p> <p>21 A. Yes. I've got a lot more.</p> <p>22 Q. Well, and it's on your list,</p> <p>23 which we marked as Exhibit 15; is that right?</p> <p>24 A. That's correct.</p>	<p>1 But based on my current</p> <p>2 understanding, I don't believe they've ever</p> <p>3 been totally successful in doing so.</p> <p>4 So in answer to your question,</p> <p>5 which I think was, was there ever a point in</p> <p>6 time where you believe the talcum powder</p> <p>7 products involved in this case were not</p> <p>8 contaminated with asbestos, no.</p> <p>9 BY MR. ZELLERS:</p> <p>10 Q. You cite in your report,</p> <p>11 page 5, to two exhibits to the depositions of</p> <p>12 John Hopkins and Julie Pier in support of</p> <p>13 your opinion that talcum powder products</p> <p>14 contain asbestos; is that right?</p> <p>15 A. That's correct.</p> <p>16 Q. Looking at page 5, footnote 1,</p> <p>17 you cite to Exhibit Hopkins-28 in the Hopkins</p> <p>18 deposition and Exhibit Pier-47 in the Pier</p> <p>19 deposition; is that right?</p> <p>20 A. That's correct.</p> <p>21 Q. Are you aware that those</p> <p>22 exhibits were created by plaintiffs' counsel?</p> <p>23 MS. O'DELL: Objection to form.</p> <p>24 A. I didn't -- I -- I don't know</p>
Page 147	Page 149
<p>1 Q. All right. Those studies did</p> <p>2 not involve the perineal application of</p> <p>3 talcum powder products; is that right?</p> <p>4 MS. O'DELL: Object to the</p> <p>5 form.</p> <p>6 A. It was not a factor in the</p> <p>7 study.</p> <p>8 BY MR. ZELLERS:</p> <p>9 Q. Crocidolite and chrysotile</p> <p>10 asbestos has generally not been found in</p> <p>11 talcum powder products, correct?</p> <p>12 A. In general, that's the case.</p> <p>13 Q. Was there ever a point in time</p> <p>14 where you believe that the talcum powder</p> <p>15 products involved in this case were not</p> <p>16 contaminated with asbestos?</p> <p>17 MS. O'DELL: Objection to form,</p> <p>18 vague as to time.</p> <p>19 A. My understanding is that Imerys</p> <p>20 and their predecessors and Johnson & Johnson</p> <p>21 made significant efforts to reduce components</p> <p>22 of asbestos in their talc products over a</p> <p>23 number of years and made step-wise progress</p> <p>24 in doing that.</p>	<p>1 that and doesn't matter to me.</p> <p>2 BY MR. ZELLERS:</p> <p>3 Q. Do you know where the data in</p> <p>4 those exhibits come from?</p> <p>5 A. Well, they come from the two</p> <p>6 persons who are testifying who have produced</p> <p>7 them from their -- mostly from their business</p> <p>8 records.</p> <p>9 Q. Okay. So you believe that</p> <p>10 Exhibit Hopkins-28 to the Hopkins deposition</p> <p>11 and Exhibit Pier-47 to the Pier deposition</p> <p>12 come from the business records of the</p> <p>13 Johnson & Johnson Company and Imerys?</p> <p>14 A. From the most part, there was</p> <p>15 a -- there was a table that was constructed</p> <p>16 during the deposition which was sort of a</p> <p>17 piece of summary information. I don't know</p> <p>18 if it's an exhibit to the deposition or if</p> <p>19 it's something separate from that, but it</p> <p>20 would not have been from business records,</p> <p>21 but occurred at the deposition itself.</p> <p>22 MS. O'DELL: Excuse me,</p> <p>23 Dr. Carson, would you like to see a</p> <p>24 copy of exhibit -- of the Hopkins</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 150	Page 152
<p>1 Exhibit Hopkins-28 and Pier 2 Exhibit Pier-47 in answering these 3 questions? 4 THE WITNESS: If that's easy to 5 do, yes. 6 MS. O'DELL: It's very easy to 7 do. This is a copy of 8 Exhibit Hopkins-28 of the Hopkins 9 deposition and Exhibit Pier-47 of the 10 Pier deposition. 11 THE WITNESS: Okay. 12 BY MR. ZELLERS: 13 Q. Dr. Carson? 14 A. Yes, sir. 15 Q. Did you make any effort to 16 investigate the alternative explanations for 17 the data that's contained in those two 18 exhibits, Exhibit Hopkins-28 and 19 Exhibit Pier-47? 20 A. Alternative explanations, I'm 21 not sure what you mean by that. 22 Q. If the Johnson & Johnson 23 company -- companies' scientists and Imerys' 24 scientists opined that those tests don't</p>	<p>1 exhibits you're looking at, 2 Exhibit Hopkins-28 and Exhibit Pier-47, were 3 included in talcum powder product sold by J&J 4 Consumer Products? 5 MS. O'DELL: Objection to the 6 form, asked and answered. 7 A. No, I don't. 8 BY MR. ZELLERS: 9 Q. Have you confirmed -- strike 10 that. 11 What amount of asbestos 12 exposure is associated with ovarian cancer? 13 A. Any. 14 Q. Your testimony under oath is 15 that any asbestos exposure is associated with 16 ovarian cancer? 17 A. Any asbestos exposure and any 18 perineal application of talcum powder is 19 associated with an increased risk for ovarian 20 cancer. 21 Q. The amount of asbestos 22 contained -- or allegedly contained within 23 the baby powder is of no consequence, 24 correct?</p>
Page 151	Page 153
<p>1 actually show asbestos, you have no expertise 2 to dispute that, do you? 3 MS. O'DELL: Object to the 4 form. 5 A. No, I don't have any personal 6 expertise to dispute that. 7 BY MR. ZELLERS: 8 Q. Do you know whether or not any 9 of the talc product that is identified on 10 Exhibit Hopkins-28 and Exhibit Pier-47 was 11 actually used in the talcum powder products 12 that were sold by the Johnson & Johnson 13 Consumer Products company? 14 MS. O'DELL: Objection to form. 15 A. I -- it's my understanding that 16 some of these results, at least -- in 17 particular from the Pier deposition, that 18 some of these results were from testing that 19 was done on material that had already been 20 shipped and probably incorporated into 21 products. 22 BY MR. ZELLERS: 23 Q. Do you know whether or not any 24 of the talc that is referred to on the two</p>	<p>1 MS. O'DELL: Object to the 2 form. 3 A. No, it is of consequence, and a 4 larger dose would be a greater hazard. But 5 that doesn't mean that a low dose is not a 6 hazard. 7 BY MR. ZELLERS: 8 Q. My question is: Do you know 9 the amount of alleged asbestos exposure 10 that's associated with ovarian cancer? 11 A. No. 12 Q. Do you know the type of ovarian 13 cancer that asbestos is associated with? 14 MS. O'DELL: Object to the 15 form. 16 A. It's associated mostly with the 17 collection of epithelial ovarian cancers -- 18 BY MR. ZELLERS: 19 Q. What -- 20 A. -- primarily serous. 21 Q. Does the type of ovarian cancer 22 vary based upon the type of asbestos? 23 A. Not that I'm aware of. 24 Q. You believe that all types of</p>

39 (Pages 150 to 153)

Arch I. "Chip" Carson, M.D., Ph.D.

Page 154	Page 156
<p>1 asbestos can produce all types of ovarian 2 cancer; is that correct? 3 MS. O'DELL: Object to the 4 form. 5 A. I suspect that some forms of 6 asbestos are much more carcinogenic than 7 others, and that would be true for the 8 ovaries as well as other structures in the 9 body. 10 BY MR. ZELLERS: 11 Q. Are you able to distinguish for 12 us what types of asbestos cause or are 13 associated with what types of ovarian cancer? 14 A. I don't think I'm able to make 15 those distinctions, but the studies I just 16 read to you regarding the relationship 17 between asbestos and ovarian cancer and the 18 others on my list do indicate that there are, 19 for example, in the Acheson study, there 20 were -- there was a positive relationship 21 between both crocidolite and chrysotile 22 exposure, and the crocidolite had a greater 23 effect on ovarian cancer than the chrysotile, 24 but did not have -- they were both positive.</p>	<p>1 A. That's background information 2 and my personal knowledge. 3 Q. You are not going to give an 4 opinion on mines, mining or milling in this 5 case; is that right? 6 A. Depends on the questions. 7 Q. Well, as you sit here today, do 8 you intend to give opinions on talc mining, 9 mines or milling? 10 A. It wasn't my intention, but if 11 asked a question that I think I'm qualified 12 to answer, I'll try to do it. 13 Q. Are you an expert on talc 14 mining and milling? 15 A. I'm an expert on industrial 16 processes in general, and if -- I have some 17 personal understanding of talc mining and 18 milling. 19 Q. Have you been personally 20 involved in talc mining and milling? 21 A. I haven't been involved in it; 22 I've observed it. 23 Q. Do you consider yourself to be 24 an expert in talc mining and milling?</p>
Page 155	Page 157
<p>1 Q. What type of ovarian cancer? 2 A. That, I don't know at the 3 moment. I could look in the paper and see if 4 it's listed. 5 Q. There are a number of different 6 types of ovarian cancer; is that right? 7 A. That's correct. 8 Q. You are not familiar with J&J 9 Consumer Products' procedures for milling or 10 mining; is that right? 11 MS. O'DELL: Object to the 12 form. 13 A. I'm familiar with some of their 14 procedures, yes. 15 BY MR. ZELLERS: 16 Q. Are you familiar with their 17 testing of source mines? 18 A. To some extent. 19 MS. O'DELL: Object to the 20 form. 21 BY MR. ZELLERS: 22 Q. Is it set forth in your report, 23 or is that just background information that 24 you looked at?</p>	<p>1 MS. O'DELL: Objection, asked 2 and answered. 3 A. No, I don't. 4 BY MR. ZELLERS: 5 Q. You have no independent basis 6 to say that cosmetic talc contains asbestos, 7 correct? 8 MS. O'DELL: Object to the 9 form. 10 A. What do you mean by independent 11 basis? 12 BY MR. ZELLERS: 13 Q. You have not done any testing 14 of talcum powder to determine whether it 15 contains asbestos or not; is that right? 16 A. No. All of my understanding is 17 based on other sources. 18 Q. And those other sources would 19 be, in part, the testing that was done by 20 Longo; is that right? 21 A. Yes, as well as the testing 22 that's reported in the -- in the literature 23 section as the Imerys test results and 24 quality control materials.</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 158	Page 160
<p>1 Q. You're looking now back at the 2 Pier Exhibit Pier-47 and the Hopkins 3 Exhibit Hopkins-28; is that right? 4 A. I was actually referring to the 5 Imerys documents that are referenced toward 6 the end of the literature exhibit to my 7 report, but certainly the Exhibit Pier-47 8 would be included there. 9 Q. You have no independent basis 10 to say that cosmetic talcum powder contains 11 fibrous talc, correct? 12 MS. O'DELL: Object to the 13 form. 14 A. I have no independent basis, 15 no. 16 BY MR. ZELLERS: 17 Q. You're familiar with the 18 limitations of the research on a potential 19 link between asbestos and ovarian cancer; is 20 that right? 21 MS. O'DELL: Object to the 22 form. 23 A. I'm familiar with some research 24 limitations in that question, yes.</p>	<p>1 BY MR. ZELLERS: 2 Q. The Reid paper that I've handed 3 you, what we've marked as Exhibit 17, looks 4 at the issue: Does exposure to asbestos 5 cause ovarian cancer. 6 Is that right? 7 A. Yes. 8 Q. They talk about in terms of 9 limitations on the first page, right-hand 10 column, they say: Studies that have examined 11 this issue have been limited for two major 12 reasons. 13 Is that right? 14 A. Yes. 15 Q. Number one, small number of 16 cases, much fewer women than men have been 17 exposed to asbestos, particularly in more 18 heavily exposed occupational settings where 19 relative risks are higher; is that right? 20 A. Yes. 21 Q. How many of these studies -- 22 well, strike that. 23 Would you agree that the 24 studies in this area have been primarily</p>
Page 159	Page 161
<p>1 BY MR. ZELLERS: 2 Q. You agree that research on the 3 potential relationship between asbestos and 4 ovarian cancer has only considered a small 5 number of cases; is that right? 6 MS. O'DELL: Object to the 7 form. 8 A. Well, it's considered thousands 9 of cases. Certainly in terms of the number 10 of women who have experienced ovarian cancer 11 it's small, but it's significant, and that's 12 where we get research from that answers 13 important questions. 14 BY MR. ZELLERS: 15 Q. Are you familiar with the Reid 16 paper, 2011? 17 A. Yes, but it's been a while 18 since I've looked at it. 19 Q. Well, I'll hand you a copy. 20 We'll mark it as Exhibit 17. 21 (Carson Deposition Exhibit 17 22 marked.) 23 MS. O'DELL: Thank you. 24 ///</p>	<p>1 related to occupational exposure? 2 A. Primarily, yes. 3 Q. How many total women have been 4 studied? 5 MS. O'DELL: Object to the 6 form. In this study, in this paper, 7 or are you talking about in general? 8 MR. ZELLERS: In general. 9 A. I don't know the answer to 10 that. 11 BY MR. ZELLERS: 12 Q. How many women have been 13 studied in nonoccupational studies? 14 A. Well, very few in comparison to 15 the occupational studies. 16 Q. Are you aware of the 17 difficulties that have existed over time in 18 distinguishing between peritoneal 19 mesothelioma and ovarian cancer? 20 A. Yes. 21 Q. What are those difficulties? 22 A. There is a potential 23 misclassification of one as the other because 24 they have very common habits. They look very</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 162	Page 164
<p>1 similar under light microscopy, and they're</p> <p>2 often difficult to distinguish, even by a</p> <p>3 pathologist, unless special tests are used.</p> <p>4 Often these cases occur in</p> <p>5 places where they don't have the access to</p> <p>6 special test equipment that can definitively</p> <p>7 distinguish, and so they are classified and</p> <p>8 we move on.</p> <p>9 Q. Another limitation of any</p> <p>10 studies in this area relate to the inability</p> <p>11 to account for nonoccupational risk factors</p> <p>12 for ovarian cancer other than age; is that</p> <p>13 right?</p> <p>14 MS. O'DELL: Object to the</p> <p>15 form.</p> <p>16 A. Are you reading also from this</p> <p>17 paper or --</p> <p>18 BY MR. ZELLERS:</p> <p>19 Q. I was looking now at the</p> <p>20 Camargo paper. Are you familiar with the</p> <p>21 Camargo paper?</p> <p>22 A. If you have a copy of that, I'd</p> <p>23 like to look at it, if I'm going to answer</p> <p>24 questions about it.</p>	<p>1 take a minute to refresh yourself on</p> <p>2 the page --</p> <p>3 MR. ZELLERS: I'm looking under</p> <p>4 Discussion.</p> <p>5 MS. O'DELL: -- please feel</p> <p>6 free to do that.</p> <p>7 Excuse me, sir, I was talking.</p> <p>8 If you need to review the paper,</p> <p>9 Dr. Carson, please feel free to do</p> <p>10 that.</p> <p>11 MR. ZELLERS: This doctor has</p> <p>12 given 35 depositions. He is perfectly</p> <p>13 capable of handling himself. He does</p> <p>14 not need your advice as we go along.</p> <p>15 MS. O'DELL: Nor do I, Michael.</p> <p>16 So I'm going to deal with this witness</p> <p>17 in the way I choose, which is</p> <p>18 perfectly appropriate. If Dr. Carson</p> <p>19 needs to review the paper, he's going</p> <p>20 to review the paper. You may ask him</p> <p>21 questions, he'll be happy to respond.</p> <p>22 MR. ZELLERS: Your job is not</p> <p>23 to coach the witness; your job is to</p> <p>24 make objections as to form or</p>
Page 163	Page 165
<p>1 Q. All right. This is a paper in</p> <p>2 2011. We'll mark it as Exhibit 18.</p> <p>3 (Carson Deposition Exhibit 18</p> <p>4 marked.)</p> <p>5 BY MR. ZELLERS:</p> <p>6 Q. Here the authors also looked at</p> <p>7 the issue of occupational exposure to</p> <p>8 asbestos and ovarian cancer; is that right?</p> <p>9 A. Yes.</p> <p>10 Q. If you turn to page 216 -- I'm</p> <p>11 sorry, 1216, second-to-last paragraph before</p> <p>12 the conclusion: A further limitation of our</p> <p>13 analysis was its inability to account for</p> <p>14 nonoccupational risk factors for ovarian</p> <p>15 cancer other than age.</p> <p>16 Is that identified by the</p> <p>17 authors as a limitation?</p> <p>18 A. Yes, it is.</p> <p>19 Q. Under -- if you go a page back,</p> <p>20 1215, under Discussion, in the second</p> <p>21 paragraph, the authors talk about other</p> <p>22 studies that have been done in this area,</p> <p>23 including Edelman; is that right?</p> <p>24 MS. O'DELL: If you need to</p>	<p>1 foundation, not to make speaking</p> <p>2 objections and coaching of the</p> <p>3 witness.</p> <p>4 MS. O'DELL: If you have a</p> <p>5 question, I'm sure Dr. Carson would be</p> <p>6 happy to address it.</p> <p>7 MR. ZELLERS: I've asked him</p> <p>8 the question.</p> <p>9 MS. O'DELL: Would you mind</p> <p>10 repeating the question, please?</p> <p>11 MR. ZELLERS: Sure.</p> <p>12 THE WITNESS: I don't remember</p> <p>13 the question.</p> <p>14 MR. ZELLERS: Okay. I'll be</p> <p>15 happy to repeat it.</p> <p>16 BY MR. ZELLERS:</p> <p>17 Q. Dr. Carson, you've looked at</p> <p>18 this Camargo paper; is that right?</p> <p>19 A. Yes.</p> <p>20 Q. In their discussion, they talk</p> <p>21 about other research, including research done</p> <p>22 by Edelman; is that right?</p> <p>23 A. Are you at the top of the</p> <p>24 middle column on --</p>

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 166</p> <p>1 Q. I'm looking under Discussion. 2 A. Yes. 3 Q. The first -- well, the second 4 paragraph. 5 A. Second paragraph, yes. 6 Q. The magnitude of the pooled 7 estimate is similar to that reported by 8 Edelman; is that right? 9 A. Correct. Correct. 10 Q. Then they state: They 11 concluded, however, that despite the positive 12 and significant association, there was 13 insufficient information to infer that 14 ovarian cancers were caused by occupational 15 exposure to asbestos because of concerns 16 about tumor misclassification, inappropriate 17 comparison populations and the failure to 18 take into account for known risk factors. 19 Did I read that -- 20 A. You read that correctly. 21 Q. All right. Are women who use 22 talc perineally at greater risk of 23 mesothelioma? 24 A. I can't say that they are, but</p>	<p style="text-align: right;">Page 168</p> <p>1 BY MR. ZELLERS: 2 Q. -- if your theory is correct? 3 MS. O'DELL: Object to the 4 form. 5 A. There may have been higher 6 rates of ovarian cancers, but you have to 7 also understand that the latency period for 8 ovarian cancer is pretty long. It's greater 9 than 20 years, often as long as 40 years. 10 And so we're still dealing with cancers that 11 may have started back in the '70s. 12 BY MR. ZELLERS: 13 Q. Would you agree that exposure 14 to asbestos through a perineal cosmetic talc 15 use is different from the heavy occupational 16 exposure that has primarily been researched? 17 MS. O'DELL: Objection to form. 18 A. Yes. I agree with that. 19 BY MR. ZELLERS: 20 Q. Are you an expert and 21 knowledgeable about cleavage fragments? 22 A. I'm not. 23 Q. If I went through a series of 24 questions and asked you to differentiate</p>
<p style="text-align: right;">Page 167</p> <p>1 they may be. 2 Q. Wouldn't you expect to find 3 higher rates of other cancers in women using 4 talc like mesothelioma if they are being 5 exposed to substantial amounts of asbestos? 6 A. Well, we may -- we may be 7 seeing some mesotheliomas that are 8 misclassified as ovarian cancers, or we may 9 be seeing mesotheliomas and not relating talc 10 application as a pertinent contributor to 11 that case. 12 Q. You told us earlier that you 13 thought that there may have been more 14 asbestos in talcum powders in the 1970s; is 15 that right? 16 MS. O'DELL: Objection to form. 17 A. I think I said there have been 18 step-wise improvements, and I -- but I agree 19 with that statement. 20 BY MR. ZELLERS: 21 Q. Shouldn't we have seen higher 22 rates of ovarian cancer in the earlier 23 studies -- 24 MS. O'DELL: Object --</p>	<p style="text-align: right;">Page 169</p> <p>1 between cleavage fragments and asbestos 2 fibers, you would defer that to other 3 experts? 4 A. I would. 5 Q. You also claim that the 6 presence of carcinogenic metals, including 7 chromium, cobalt and nickel in talc, adds to 8 its carcinogenicity; is that right? 9 A. That is right. 10 Q. Do you have an opinion or 11 knowledge as to the amounts of chromium, 12 cobalt and nickel, if any, in talc? 13 A. Those metal elements are 14 included as -- usually as impurities or in 15 very small quantities in some deposits and 16 are present in small amounts. 17 Q. Do you have any idea how much 18 of these metals, if any, reaches a woman's 19 ovaries each time they use talc? 20 A. I can't tell you how much, but 21 I can tell you that some does, and it is -- 22 it remains in the talc until long after it 23 reaches the ovaries. 24 Q. Chromium, cobalt and nickel are</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 170	Page 172
<p>1 natural elements; is that right?</p> <p>2 A. Yes.</p> <p>3 Q. They are naturally in our</p> <p>4 bodies; is that right?</p> <p>5 A. That's correct.</p> <p>6 Q. They are present in food,</p> <p>7 drinking water, bottled water, vitamins; is</p> <p>8 that right?</p> <p>9 A. To some extent.</p> <p>10 Q. Do you have any evidence that</p> <p>11 the blood or tissue levels of any trace heavy</p> <p>12 metals are higher in genital talc users</p> <p>13 compared to nonusers?</p> <p>14 MS. O'DELL: Object to the</p> <p>15 form.</p> <p>16 A. I do not.</p> <p>17 BY MR. ZELLERS:</p> <p>18 Q. As we discussed when we talked</p> <p>19 about asbestos, you cannot evaluate the</p> <p>20 potential effects of exposure to a substance</p> <p>21 without factoring in the amount of exposure;</p> <p>22 is that right?</p> <p>23 MS. O'DELL: Object to the</p> <p>24 form.</p>	<p>1 to chromium, cobalt or nickel or any other</p> <p>2 heavy metal; is that right?</p> <p>3 A. That is correct.</p> <p>4 Q. That answer to that question</p> <p>5 would be true if I asked you about the</p> <p>6 different fragrance chemicals, correct?</p> <p>7 MS. O'DELL: Object to the</p> <p>8 form.</p> <p>9 A. Also true.</p> <p>10 BY MR. ZELLERS:</p> <p>11 Q. You did a risk assessment in</p> <p>12 this matter; is that right?</p> <p>13 A. Yes.</p> <p>14 Q. Do you agree that a complete</p> <p>15 and proper risk assessment involves four</p> <p>16 elements?</p> <p>17 MS. O'DELL: Object to the</p> <p>18 form.</p> <p>19 A. Not necessarily.</p> <p>20 BY MR. ZELLERS:</p> <p>21 Q. Well, you have to identify a</p> <p>22 potential hazard; is that right?</p> <p>23 A. Yes.</p> <p>24 Q. You've got to do some type of</p>
Page 171	Page 173
<p>1 A. It's useful to factor in the</p> <p>2 amount if the amount is known. If the amount</p> <p>3 is not known, it's not necessarily required</p> <p>4 to draw conclusions.</p> <p>5 BY MR. ZELLERS:</p> <p>6 Q. In this case, you do not know</p> <p>7 the amount, be it chromium, cobalt and/or</p> <p>8 nickel; is that right?</p> <p>9 MS. O'DELL: Objection to the</p> <p>10 form.</p> <p>11 Excuse me. Dr. Carson, as you</p> <p>12 know, is not being offered as a</p> <p>13 case-specific expert, so that question</p> <p>14 sounds like a specific patient, and so</p> <p>15 I would -- that's my objection.</p> <p>16 A. I do not know the amount, but</p> <p>17 my opinion is that any within the</p> <p>18 microenvironment of the inflammatory process</p> <p>19 that is occurring due to talc sequestration</p> <p>20 is contributing to the carcinogenic</p> <p>21 potential.</p> <p>22 BY MR. ZELLERS:</p> <p>23 Q. But you don't know for any</p> <p>24 individual plaintiff their level of exposure</p>	<p>1 dose-response assessment; is that right?</p> <p>2 A. Not necessarily.</p> <p>3 Q. You --</p> <p>4 MS. O'DELL: Excuse me. If you</p> <p>5 finished -- if you need to,</p> <p>6 Dr. Carson, if you're not finished.</p> <p>7 If you're finished, fine. Sorry.</p> <p>8 A. A qualitative risk assessment</p> <p>9 does not necessarily require a dose-response</p> <p>10 in order to reach valid conclusions.</p> <p>11 BY MR. ZELLERS:</p> <p>12 Q. It is not necessary to do a</p> <p>13 dose-response assessment as part of a risk</p> <p>14 assessment. Is that your testimony under</p> <p>15 oath?</p> <p>16 A. It's not always necessary.</p> <p>17 Q. Was it necessary in this case?</p> <p>18 A. Well, I think there is an</p> <p>19 aspect of dose-response that was performed in</p> <p>20 the risk assessment process here.</p> <p>21 Q. What dose-response assessment</p> <p>22 did you make with respect to chromium, cobalt</p> <p>23 and nickel and any other heavy metal?</p> <p>24 A. There's no information</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 174	Page 176
<p>1 available to do a dose-response estimate for</p> <p>2 those metals.</p> <p>3 Q. What information did you rely</p> <p>4 or use, if any, to make a dose-response</p> <p>5 assessment with respect to any fragrance</p> <p>6 chemicals?</p> <p>7 MS. O'DELL: Objection, form.</p> <p>8 A. There is no information</p> <p>9 available to do a dose-response estimate for</p> <p>10 the fragrances.</p> <p>11 BY MR. ZELLERS:</p> <p>12 Q. Did you do any type of exposure</p> <p>13 assessment in this case?</p> <p>14 MS. O'DELL: Object to the</p> <p>15 form, vague.</p> <p>16 A. I'm not sure exactly what</p> <p>17 you're -- what you're asking by exposure</p> <p>18 assessment.</p> <p>19 BY MR. ZELLERS:</p> <p>20 Q. Well, an exposure assessment is</p> <p>21 also part of a risk assessment; is that</p> <p>22 right?</p> <p>23 A. In this risk assessment, I</p> <p>24 considered studies that are reported in the</p>	<p>1 and the metals were there as the baseline</p> <p>2 component of the talc formation that they</p> <p>3 came from.</p> <p>4 BY MR. ZELLERS:</p> <p>5 Q. You do not know the amounts of</p> <p>6 either the heavy metals or the fragrance</p> <p>7 chemicals in the talcum powder at issue in</p> <p>8 this case, correct?</p> <p>9 A. That's -- that's correct, I</p> <p>10 don't.</p> <p>11 Q. You do not know -- well, strike</p> <p>12 that. I'll withdraw that.</p> <p>13 You brought with you an IARC</p> <p>14 monograph; is that right?</p> <p>15 A. I have a couple of them.</p> <p>16 Q. All right.</p> <p>17 MS. O'DELL: Are we going to --</p> <p>18 are you going to move to --</p> <p>19 MR. ZELLERS: We can take a</p> <p>20 break if you'd like.</p> <p>21 MS. O'DELL: Yeah, it's been</p> <p>22 about an hour and a half.</p> <p>23 MR. ZELLERS: Sure.</p> <p>24 THE VIDEOGRAPHER: We're off</p>
Page 175	Page 177
<p>1 scientific and medical literature which have</p> <p>2 reported the assessment of exposure in these</p> <p>3 cases in various forms, and I considered</p> <p>4 those exposure assessments as being valid as</p> <p>5 reported and considered them as a whole.</p> <p>6 Q. Did you look at any exposure</p> <p>7 assessment specific to the alleged heavy</p> <p>8 metals contained in talcum powder?</p> <p>9 MS. O'DELL: Object to the</p> <p>10 form.</p> <p>11 A. No, I did not.</p> <p>12 BY MR. ZELLERS:</p> <p>13 Q. Did you look at any exposure</p> <p>14 assessment with respect to any fragrance</p> <p>15 chemicals contained within talcum powder?</p> <p>16 MS. O'DELL: Object to the</p> <p>17 form.</p> <p>18 A. With respect to the fragrance</p> <p>19 chemicals and the heavy metals, the only</p> <p>20 exposure assessment that I was able to do was</p> <p>21 verify that these things were present in</p> <p>22 materials.</p> <p>23 The fragrances are always</p> <p>24 present in whatever form they were added in,</p>	<p>1 the record 12:32, end of Tape 2.</p> <p>2 (Recess taken, 12:32 p.m. to</p> <p>3 1:38 p.m.)</p> <p>4 THE VIDEOGRAPHER: We're on the</p> <p>5 record, 1:38, beginning of Tape 3.</p> <p>6 BY MR. ZELLERS:</p> <p>7 Q. Dr. Carson, when we left, we</p> <p>8 were talking about the trace metals and</p> <p>9 fragrance chemicals in talcum powder,</p> <p>10 correct?</p> <p>11 A. Yes.</p> <p>12 Q. You do not know how much of</p> <p>13 these trace metals or fragrance chemicals</p> <p>14 reach the ovaries, correct?</p> <p>15 A. I don't know specifically how</p> <p>16 much reaches it, but if I know it's a</p> <p>17 component of the talc, and if I know the talc</p> <p>18 reaches it, then I know some of the metals</p> <p>19 and the fragrances reach it.</p> <p>20 Q. You don't know the component or</p> <p>21 the amount of either the trace metals or the</p> <p>22 fragrance chemicals in the baby powder,</p> <p>23 correct?</p> <p>24 A. That's correct.</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 178	Page 180
<p>1 Q. You do not know the exposure of 2 any of the women who are plaintiffs in this 3 litigation to the talcum powder, correct? 4 MS. O'DELL: Individual women? 5 MR. ZELLERS: Yes, individual 6 women. 7 A. I don't, no. 8 BY MR. ZELLERS: 9 Q. You brought with you an IARC 10 monograph, and I think you've got several 11 monographs that are on your literature list; 12 is that right? 13 A. That's correct. 14 Q. Generally, IARC classifies 15 chemicals and agents from Group 1, 16 carcinogenic to humans, down to Group 4, 17 probably not carcinogenic to humans; is that 18 right? 19 A. That's correct. 20 Q. Does the classification of a 21 substance as a known probable or possible 22 carcinogen by IARC, and IARC is International 23 Agency for Research on Cancer, or by the 24 National Toxicology Program or the U.S.</p>	<p>1 BY MR. ZELLERS: 2 Q. What -- would you agree that, 3 in general, metals can differ in their 4 toxicity and potential carcinogenicity based 5 on their form? 6 A. Yes. 7 Q. Do you know the forms of 8 chromium, nickel and cobalt detected in 9 cosmetic talc? 10 A. There's -- metal ions are 11 usually incorporated in the mineral lattice, 12 and so they are part of the magnesium 13 silicate crystal. 14 Q. I'm not sure if that answers my 15 question, and if it does, I don't understand, 16 so let me ask again. 17 Do you know the forms, and by 18 that I mean valence state, of chromium or 19 nickel or cobalt that have been detected in 20 cosmetic talc? 21 A. Oh, the valence state? 22 Q. Yes, sir. 23 A. I don't know specifically, but 24 that's dependent on the surrounding structure</p>
Page 179	Page 181
<p>1 Environmental Protection Agency, mean that 2 the substance can cause all types of cancers 3 in humans by any exposure route? 4 MS. O'DELL: Object to the 5 form. 6 A. No. 7 BY MR. ZELLERS: 8 Q. There are different cancers 9 that may be associated with different 10 chemicals or agents; is that right? 11 A. And different routes of 12 exposure. 13 Q. You can have an agent that is a 14 carcinogen or a probable or possible 15 carcinogen for one type of cancer, but not 16 for another type of cancer, correct? 17 A. That's correct. 18 Q. You can have an agent or a 19 chemical that's a carcinogen for one route of 20 exposure for a chemical or agent but is not 21 carcinogenic for a different route of 22 exposure, correct? 23 MS. O'DELL: Objection to form. 24 A. Yes.</p>	<p>1 that the metals are contained in, and metals 2 can assume a different valence state 3 depending on the redox environment. 4 Q. You are not, at least in this 5 litigation today, expressing any opinion as 6 to the valence state of chromium that may be 7 found in cosmetic talc, correct? 8 MS. O'DELL: Object to the 9 form. 10 A. No, I'm not. 11 BY MR. ZELLERS: 12 Q. Your second opinion is that the 13 perineal use of talcum powder results in 14 direct exposure to the ovaries either via 15 inhalation or migration through the female 16 reproductive tract; is that right? 17 A. Well, it's primarily through 18 the female reproductive tract. The 19 inhalation exposure would be a secondary 20 route. 21 Q. Let me ask you a couple of 22 questions about inhalation exposure. 23 You do not cite any studies in 24 the body of your report evidencing that</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 182	Page 184
<p>1 talcum powder can reach the ovaries through 2 inhalation, correct? 3 MS. O'DELL: Object to the 4 form. 5 A. That is correct, although 6 there -- yes, that's correct. 7 BY MR. ZELLERS: 8 Q. You have never performed any 9 study yourself pertaining to whether inhaled 10 talc can migrate to the ovaries; is that 11 right? 12 A. I have not, although it has 13 been used as an explanation of how talc 14 particles might have reached the ovaries in 15 persons who did not have another form of 16 exposure. 17 Q. If inhalation is the exposure 18 path for talc, shouldn't the lungs bear more 19 of a burden? 20 A. Yes. 21 Q. Why, then, isn't there an 22 epidemic of mesothelioma in women who use 23 talcum powder? 24 A. Because the primary route is</p>	<p>1 A. The -- I'm sorry. The Heller 2 study was talc, which I didn't cite here. 3 Halme was a retrograde menstruation study via 4 the fallopian tubes, and Sjösten was starch 5 particles. 6 Q. The only study -- and this is 7 not one that you cited, but you've now 8 referred to that involved talc, was Heller; 9 is that right? 10 A. Well, it looked at -- it didn't 11 look at transport inasmuch as it looked at 12 the presence of talc particles in the ovaries 13 and found them with or without the history of 14 talc powder use. 15 Q. Heller looked at 24 patients; 16 is that right? 17 A. I don't know, but that sounds 18 about right. 19 Q. Half of them had a history of 20 using talc products, half did not? 21 MS. O'DELL: Object to form. 22 A. That's correct. 23 BY MR. ZELLERS: 24 Q. Heller found talc in the</p>
Page 183	Page 185
<p>1 perineal via the reproductive tract. 2 Q. You discuss that on page 7 of 3 your report; is that right? 4 A. Yes. 5 Q. You cite a number of studies 6 for the proposition that talc can be 7 transported from the perineum to the upper 8 reproductive tract and body cavity; is that 9 right? 10 A. That's correct. 11 Q. None of the articles that you 12 cite actually looked at whether talc can 13 migrate from perineal application through the 14 fallopian tubes to the ovaries, did they? 15 A. Let me just refresh my memory 16 for a moment here. Egli was carbon black. 17 Venter was radioactive technetium labeled 18 albumin. Let me see. Blumenkrantz -- I have 19 my notes here. 20 Yeah, I can't remember what the 21 substance was in Blumenkrantz. Sjösten, 22 starch -- yeah, Blumenkrantz was retrograde 23 menstruation. Halme was talc. 24 Q. Which study was talc?</p>	<p>1 tissues of all 24 patients; is that right? 2 A. That is correct. 3 Q. I believe we covered this 4 before, but just to confirm: There are no 5 published articles that you're aware of that 6 show granulomas, fibrosis or adhesions 7 anywhere in the reproductive tract of a woman 8 as a result of external genital talc 9 application, correct? 10 MS. O'DELL: Object to the 11 form. 12 A. I believe that's the case, 13 although there have been granulomas found in 14 some cases of cancer where they reported 15 having used talc. 16 BY MR. ZELLERS: 17 Q. Of the cases or the studies you 18 cited here, Egli, that involved just three 19 women, correct? 20 A. That was just -- that was an 21 experimental study of the transport of carbon 22 particles. 23 Q. The women were in a lithotomy 24 position; is that right?</p>

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 186</p> <p>1 A. That's correct.</p> <p>2 Q. And that means that they had</p> <p>3 their legs up in the air, correct?</p> <p>4 A. Correct.</p> <p>5 Q. Those conditions -- well,</p> <p>6 strike that.</p> <p>7 They were injected with</p> <p>8 oxytocin; is that right?</p> <p>9 A. It is.</p> <p>10 Q. That was to aid in the</p> <p>11 transport of the particles, correct?</p> <p>12 MS. O'DELL: Object to the</p> <p>13 form.</p> <p>14 A. I believe that was the author's</p> <p>15 theory.</p> <p>16 BY MR. ZELLERS:</p> <p>17 Q. Those are different</p> <p>18 circumstances or conditions from a woman who</p> <p>19 would apply a talc to her genital area</p> <p>20 standing up, correct?</p> <p>21 A. Well, they are, but I'm not</p> <p>22 sure that that position is really pertinent</p> <p>23 to the migration of particles through the</p> <p>24 reproductive tract.</p>	<p style="text-align: right;">Page 188</p> <p>1 of all these studies -- that they were using</p> <p>2 various particles that could be detected at</p> <p>3 the other end, and so this was an attempt to</p> <p>4 do an experimental study which would cause no</p> <p>5 harm that would give them an answer regarding</p> <p>6 transport through the reproductive tract.</p> <p>7 Q. In this study, particles were</p> <p>8 introduced into the reproductive tract, not</p> <p>9 externally; is that right?</p> <p>10 MS. O'DELL: Object to the</p> <p>11 form.</p> <p>12 A. That is correct.</p> <p>13 BY MR. ZELLERS:</p> <p>14 Q. Women were given Pitocin to</p> <p>15 stimulate uterine contractions; is that</p> <p>16 right?</p> <p>17 A. That's the same as oxytocin.</p> <p>18 Q. And that's a yes, correct?</p> <p>19 A. Yes.</p> <p>20 Q. Again, as with the Egli study,</p> <p>21 the women were inverted in the Trendelenburg</p> <p>22 position with their head down, legs up when</p> <p>23 the particles were administered; is that</p> <p>24 right?</p>
<p style="text-align: right;">Page 187</p> <p>1 Q. Is it your pos- -- is it your</p> <p>2 testimony that if a woman is in a lithotomy</p> <p>3 position with their legs up into the air,</p> <p>4 that that is comparable with respect to the</p> <p>5 migration of talc to a woman who's standing</p> <p>6 up and using it in her perineal region?</p> <p>7 A. It may be.</p> <p>8 Q. Are you an expert on that?</p> <p>9 A. I'm not.</p> <p>10 Q. The authors in Egli, they</p> <p>11 stated it was possible that the study</p> <p>12 observed false positives due to sample</p> <p>13 contamination because they failed to use</p> <p>14 liquid or filter blanks as negative controls,</p> <p>15 correct?</p> <p>16 A. I don't recall that, but that</p> <p>17 may be the case.</p> <p>18 Q. You refer to a study by Venter.</p> <p>19 That involved a radioactive particulate</p> <p>20 matter, correct?</p> <p>21 A. Yes.</p> <p>22 Q. Did not involve talc particles,</p> <p>23 correct?</p> <p>24 A. The point of the study was --</p>	<p style="text-align: right;">Page 189</p> <p>1 A. I believe so.</p> <p>2 Q. Is it possible that the</p> <p>3 radionuclides can leach from the particles?</p> <p>4 A. I don't know the answer to</p> <p>5 that, but it was radioactive technetium that</p> <p>6 was bound to albumin.</p> <p>7 Q. The Sjösten study that you</p> <p>8 cite, that did not use -- involve the</p> <p>9 perineal use of talc, but an exam with a</p> <p>10 force to the cervix; is that right?</p> <p>11 A. Excuse me. An exam with what?</p> <p>12 Q. So it involved an exam with</p> <p>13 force to the cervix?</p> <p>14 MS. O'DELL: Object to the</p> <p>15 form.</p> <p>16 A. Well, this was -- this was done</p> <p>17 as an experimental study on women who were</p> <p>18 scheduled to get hysterectomies and they did</p> <p>19 it on some women one day prior to the</p> <p>20 hysterectomy and another group of women four</p> <p>21 days prior to the hysterectomy, and they used</p> <p>22 gloves that were powdered with starch and</p> <p>23 gloves that were not powdered with starch.</p> <p>24 And so they had what's called a</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 190	Page 192
<p>1 Latin square design, and they were able at 2 the point of the hysterectomy of taking 3 samples of the fallopian tubes and washing 4 them to determine whether or not particles 5 were found in the tubes. 6 BY MR. ZELLERS: 7 Q. What they actually found was 8 that, whether the women were examined with 9 gloves with the starch particles or not, they 10 found starch particles in both, both groups, 11 correct? 12 A. It is true. 13 Q. Tubal ligation, you refer to 14 tubal ligation and use that or purport to say 15 that that supports your migration theory, 16 correct? 17 A. It does. 18 Q. Your testimony is that for 19 patients who have had a tubal ligation, that 20 they are at a lesser risk of the talc -- let 21 me withdraw that. 22 Explain to us very briefly why 23 you believe that tubal ligation supports your 24 migration theory.</p>	<p>1 Q. In fact, in Terry -- well, and 2 let me mark it for you so you've got it in 3 front of you. 4 THE WITNESS: Okay. I'm going 5 to move this binder for the time 6 being, if you don't mind. 7 MR. ZELLERS: Oh, yes, I'll 8 hand you the articles that I refer to, 9 but if you need it, just pull it out. 10 THE WITNESS: Thank you. 11 (Carson Deposition Exhibit 19 12 marked.) 13 BY MR. ZELLERS: 14 Q. Deposition Exhibit 19 is the 15 2013 Terry meta-analysis that you referred to 16 in your report; is that right? 17 A. Yes. 18 Q. That's a pooled analysis of 19 eight studies; is that right? 20 A. Yes. 21 Q. Okay. This pooled analysis of 22 eight studies relating to genital powder use 23 and the risk of ovarian cancer shows no 24 variation in the risk in talc users based on</p>
Page 191	Page 193
<p>1 A. If the pathway of exposure of 2 the ovaries that results in ovarian cancer is 3 via the reproductive tract, then tubal 4 ligation, which closes off the fallopian 5 tubes, would interrupt that pathway and 6 result in reduced exposure; therefore, you 7 would expect a reduced incidence of cancer in 8 those women. 9 Q. In fact, though, that is not 10 what has been reported or at least that has 11 not been consistently reported in the 12 studies; is that right? 13 A. Well, it actually has been a 14 positive factor in a number of the 15 epidemiologic studies that have looked at the 16 ovarian cancer incidence and have been able 17 to include tubal ligation as a historical 18 factor in their analysis. 19 Q. Did you look at the Terry 2013 20 meta-analysis? 21 A. Yes. 22 Q. You cite that in support of 23 your positions in this case; is that right? 24 A. I did.</p>	<p>1 whether they had a tubal ligation or 2 hysterectomy; is that right? 3 A. I think that's the conclusion 4 of the authors here, but it's not the 5 conclusion of the individual authors of the 6 studies who did the original investigations. 7 Q. Well, it is the conclusion of 8 the authors based upon their meta-analysis of 9 eight studies; is that right? 10 MS. O'DELL: Object to the 11 form. 12 A. Let me just check that. 13 (Document review.) 14 A. Yes. 15 BY MR. ZELLERS: 16 Q. If you look at pages 819, 17 carried over to 820, I'm reading: Our 18 finding of slightly attenuated associations 19 following exclusion of women with powder 20 exposure after tubal ligation or hysterectomy 21 are not supportive of this hypothesis, but 22 risk estimates in this subgroup analysis may 23 have randomly differed from those including 24 all women because of the reduction in sample</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 194	Page 196
<p>1 size.</p> <p>2 Is that right?</p> <p>3 A. Yes.</p> <p>4 Q. Essentially, looking at these</p> <p>5 eight studies in this meta-analysis, Terry</p> <p>6 did not find that exposure to genital powder</p> <p>7 applications that occurred before tubal</p> <p>8 ligation or hysterectomy made any substantive</p> <p>9 difference in the results; is that right?</p> <p>10 A. Yes, but the point is that the</p> <p>11 authors didn't find that it did not make a</p> <p>12 difference either. They -- they ended up</p> <p>13 with a study with reduced numbers that they</p> <p>14 couldn't make determinations about.</p> <p>15 Q. If, though, the migration</p> <p>16 theory is correct, you would expect that</p> <p>17 there would be a reduction in the incidence</p> <p>18 of ovarian cancer for women who have had a</p> <p>19 tubal ligation or hysterectomy; is that</p> <p>20 right?</p> <p>21 MS. O'DELL: Object to the</p> <p>22 form.</p> <p>23 A. Yes, that is correct.</p> <p>24 ///</p>	<p>1 THE WITNESS: Thank you.</p> <p>2 MS. O'DELL: Thank you.</p> <p>3 BY MR. ZELLERS:</p> <p>4 Q. This is also a study,</p> <p>5 Exhibit 20, Cramer 2016, that you cite as</p> <p>6 supportive of your opinions in this case,</p> <p>7 correct?</p> <p>8 A. Correct.</p> <p>9 Q. Cramer actually looked at</p> <p>10 whether or not there was any greater</p> <p>11 association of talc use and ovarian cancer</p> <p>12 and whether or not women who had a tubal</p> <p>13 ligation or hysterectomy had a reduced</p> <p>14 incidence of the disease; is that correct?</p> <p>15 A. Yes.</p> <p>16 Q. Turn to page 337, and then it</p> <p>17 carries over to 339. They're talking --</p> <p>18 they, being the authors -- of their results,</p> <p>19 and I'm reading just at the very bottom of</p> <p>20 337, carried over to 339: By test for</p> <p>21 interaction, column 3, the association was</p> <p>22 significantly greater for women who were</p> <p>23 African-American, had no personal history of</p> <p>24 breast cancer, had a tubal ligation or</p>
Page 195	Page 197
<p>1 BY MR. ZELLERS:</p> <p>2 Q. And that was not found in the</p> <p>3 Terry meta-analysis that you cite; is that</p> <p>4 right?</p> <p>5 MS. O'DELL: Object to the</p> <p>6 form.</p> <p>7 A. That is correct, but it was</p> <p>8 found in the baseline studies that were, in</p> <p>9 part, included in this meta-analysis.</p> <p>10 BY MR. ZELLERS:</p> <p>11 Q. Are you -- you also cite the</p> <p>12 Cramer study, 2016; is that right?</p> <p>13 A. Yes.</p> <p>14 Q. I've got a few questions for</p> <p>15 you on the Cramer study, but let me just ask,</p> <p>16 since we're at this part right now.</p> <p>17 Do you have the Cramer study?</p> <p>18 I'll hand it to you.</p> <p>19 A. If you have a copy, I'd</p> <p>20 appreciate it.</p> <p>21 MR. ZELLERS: Sure. We'll mark</p> <p>22 the Cramer study as Exhibit 20.</p> <p>23 (Carson Deposition Exhibit 20</p> <p>24 marked.)</p>	<p>1 hysterectomy.</p> <p>2 Is that right?</p> <p>3 MS. O'DELL: Object to the</p> <p>4 form.</p> <p>5 A. Beginning on page 337?</p> <p>6 BY MR. ZELLERS:</p> <p>7 Q. Yes.</p> <p>8 A. I'm sorry, if you could --</p> <p>9 Q. Sure. At the very end of 337.</p> <p>10 A. Okay.</p> <p>11 Q. So they're looking at --</p> <p>12 A. Oh, by tests for interaction.</p> <p>13 Q. Yes.</p> <p>14 A. Yeah.</p> <p>15 Q. So if your migration theory is</p> <p>16 correct, you would expect there to be a lower</p> <p>17 incidence of ovarian cancer in women who have</p> <p>18 had a tubal ligation or hysterectomy,</p> <p>19 correct?</p> <p>20 MS. O'DELL: Object to the</p> <p>21 form.</p> <p>22 A. That is correct.</p> <p>23 BY MR. ZELLERS:</p> <p>24 Q. All right. Cramer finds by</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 198	Page 200
<p>1 test for interaction the association was</p> <p>2 significantly greater for women who -- and</p> <p>3 then I'm skipping African-American, but I'm</p> <p>4 coming down to -- have a tubal ligation or</p> <p>5 hysterectomy.</p> <p>6 Is that correct?</p> <p>7 A. Yes.</p> <p>8 Q. All right. If talcum powder</p> <p>9 migrates from the perineal region to the</p> <p>10 ovaries, shouldn't exposure to -- exposure to</p> <p>11 talc be far greater in concentration in the</p> <p>12 rectal, vulvar, vaginal, cervical and uterine</p> <p>13 tissues which are closer to the area of</p> <p>14 initial exposure?</p> <p>15 MS. O'DELL: Objection to form.</p> <p>16 A. Well, the acute exposure would</p> <p>17 be greater.</p> <p>18 BY MR. ZELLERS:</p> <p>19 Q. You would expect because the</p> <p>20 acute exposure is greater, that there should</p> <p>21 be inflammation caused in these organs and</p> <p>22 areas, correct?</p> <p>23 A. No. The inflammation and</p> <p>24 oxidative stress is an ongoing process that</p>	<p>1 to talcum powder?</p> <p>2 MS. O'DELL: Object to the</p> <p>3 form.</p> <p>4 A. It doesn't -- it doesn't</p> <p>5 eliminate exposure, but it does remove</p> <p>6 residual exposure, as does sweating, other</p> <p>7 body secretions and so forth.</p> <p>8 BY MR. ZELLERS:</p> <p>9 Q. Are you aware of any studies</p> <p>10 that show inflammation or oxidative stress as</p> <p>11 a result of genital talc use in the rectal,</p> <p>12 vulvar, vaginal, cervical and uterine</p> <p>13 tissues?</p> <p>14 A. No, I'm not.</p> <p>15 Q. Under your theory or belief</p> <p>16 that talcum powder travels from the perineal</p> <p>17 region to the ovaries through the woman's</p> <p>18 reproductive tract, talcum powder must travel</p> <p>19 past the labia, through the vagina, through</p> <p>20 the cervix, and then to the uterus; is that</p> <p>21 right?</p> <p>22 A. That's correct.</p> <p>23 Q. And then the powder travels</p> <p>24 through the uterus and into the fallopian</p>
Page 199	Page 201
<p>1 has to develop over time, and it occurs on a</p> <p>2 chronic basis in areas where foreign bodies</p> <p>3 locate and reside. And talc and talcum</p> <p>4 powder are examples of foreign bodies that</p> <p>5 have the right characteristics to cause</p> <p>6 chemotaxis in reactive oxygen species and</p> <p>7 oxidative status.</p> <p>8 Q. Well, in fact, there would be</p> <p>9 chronic exposure, so if we're dealing with,</p> <p>10 as you described in the very beginning, which</p> <p>11 you were asked, to look at the habitual use</p> <p>12 of talcum powder, that would create exposure</p> <p>13 on a chronic basis to the rectal area and</p> <p>14 tissues, vulvar, vaginal, cervical and</p> <p>15 uterine tissues; is that right?</p> <p>16 MS. O'DELL: Object to the</p> <p>17 form.</p> <p>18 A. I suspect if one doesn't bathe,</p> <p>19 that would be more of an issue, but most</p> <p>20 people bathe regularly as well.</p> <p>21 BY MR. ZELLERS:</p> <p>22 Q. And bathing regularly</p> <p>23 eliminates any exposure in the rectal,</p> <p>24 vulvar, vaginal, cervical and uterine tissues</p>	<p>1 tubes to reach the ovaries; is that right?</p> <p>2 A. Yes.</p> <p>3 Q. On what studies are you relying</p> <p>4 to say that talcum powder affects the body</p> <p>5 differently when it's applied to the perineal</p> <p>6 region and travels to the cervix compared to</p> <p>7 when it is applied directly to the cervix?</p> <p>8 A. I don't think --</p> <p>9 MS. O'DELL: Object to the</p> <p>10 form.</p> <p>11 A. -- there is much of a</p> <p>12 difference.</p> <p>13 BY MR. ZELLERS:</p> <p>14 Q. You would expect there to be a</p> <p>15 comparable similar result whether talcum</p> <p>16 powder is applied directly to the cervix</p> <p>17 through the use of dusting of a diaphragm as</p> <p>18 there is to the use of talcum powder in the</p> <p>19 genital areas; is that right?</p> <p>20 A. That is correct. I think the</p> <p>21 two differ probably in terms of quantity very</p> <p>22 significantly. But other than that, they</p> <p>23 would be the same.</p> <p>24 Q. When applied to the perineal</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 202	Page 204
<p>1 region, talcum powder would also be in close 2 contact with a woman's urethra; is that 3 right? 4 A. Yes. 5 Q. Substances, and in your view, 6 talcum powder, are capable of traveling up 7 the urethra; is that right? 8 MS. O'DELL: Object to the 9 form. 10 A. The urethra has a sphincter 11 which prevents transport beyond that point. 12 BY MR. ZELLERS: 13 Q. Women get urinary tract 14 infections when bacteria travels up the 15 urethra; is that right? 16 A. That's correct. 17 Q. Studies, though, do not show an 18 increase in bladder cancer with talcum powder 19 use; is that right? 20 A. I don't believe that talcum 21 powder transports in any appreciable amount 22 up the urethra into the bladder. 23 Q. Studies do not show an increase 24 in rectal cancer with talcum powder use, do</p>	<p>1 about to reconsider that? 2 A. Because the chatter is that 3 this is something that's on their radar 4 screen currently. 5 Q. What chatter are you aware of? 6 And what is chatter? 7 A. It's discussion among -- within 8 the scientific and healthcare community of 9 things that are on the drawing board for 10 IARC. 11 Q. Do you know whether or not 12 IARC -- well, strike that. 13 IARC has not changed its 14 position that the migration theory and 15 evidence for the migration theory is weak; is 16 that right? 17 MS. O'DELL: Object to the 18 form. 19 A. They have not changed their 20 position that was published in the 2010 21 monograph. 22 BY MR. ZELLERS: 23 Q. All right. You have heard 24 chatter that they may look at it again; is</p>
Page 203	Page 205
<p>1 they? 2 A. No. 3 Q. Are you aware that that IARC -- 4 and you're familiar with IARC, right? 5 A. Yes. 6 Q. Are you aware that IARC rejects 7 this migration theory and calls the evidence 8 weak? 9 MS. O'DELL: Object to the 10 form. 11 A. The IARC has made that 12 statement in their -- I think the 2006 review 13 that resulted in their recent monograph, but 14 I think they're about to reconsider that. 15 BY MR. ZELLERS: 16 Q. Well, they also have stated 17 that in 2010; is that right? 18 A. Well, that's the -- 19 MS. O'DELL: Object to the 20 form. 21 A. That's the monograph from the 22 2006 review. 23 BY MR. ZELLERS: 24 Q. Why do you believe that they're</p>	<p>1 that right? 2 A. Yes. 3 Q. Other than this chatter, you're 4 unaware of any other -- well, strike that. 5 You're unaware of any change in 6 IARC's position with respect to migration, 7 correct? 8 A. Well, an example of what I'm 9 talking about is the Health Canada report, 10 which has contradicted what is found in the 11 IARC monograph and is more current and 12 considers information that will probably go 13 into the next IARC review. 14 MR. ZELLERS: Move to strike as 15 nonresponsive. 16 BY MR. ZELLERS: 17 Q. Does IARC review and rely on 18 draft assessments in formulating their 19 positions? 20 A. IARC relies on primary studies. 21 Q. Not draft assessments, correct? 22 A. Well, the draft assessment that 23 I guess you're referring to, the Health 24 Canada draft assessment, is derived from</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 206	Page 208
<p>1 primary studies, the same ones that will be 2 considered by IARC. 3 Q. All right. As of today, IARC's 4 published position is that evidence of a 5 migration theory of talcum powder migrating 6 to the ovaries is weak, correct? 7 A. Yes. 8 Q. Have you conducted any tests or 9 experiments with respect to your theory or 10 position that talc migrates to the ovaries 11 through the reproductive tract? 12 A. No, I haven't. 13 Q. How much talc actually reaches 14 the ovaries in your opinion? 15 A. I can't answer that question 16 because the dose has not been quantified. 17 Q. Does it only reach the ovaries 18 during certain times? 19 A. I don't believe so. I think 20 there are many circumstances whereby that 21 migration pathway is functional, and in my 22 belief, the pathway from the perineum to the 23 cervix is pretty much an open channel, and 24 then it continues to be open pretty much all</p>	<p>1 is that right? 2 A. That is correct. 3 Q. You are not one of those 4 physicians, correct? 5 A. I don't claim to be a 6 specialist in gynecology. 7 Q. Your third opinion is that the 8 ovaries lack an intrinsic elimination system; 9 is that right? 10 A. That's correct. 11 Q. Is "intrinsic elimination 12 system" a recognized term of art that's used 13 by gynecologists? 14 A. I don't think so. It was just 15 the term I used to describe the situation. 16 Q. Is "intrinsic elimination 17 system" a term of art used by oncologists? 18 A. The same answer. 19 Q. Have you seen published studies 20 that use that term? 21 A. I don't know. I suspect I 22 could have. It's apparently a small number 23 of ways to describe that in a few words. 24 Q. You do not cite to any studies</p>
Page 207	Page 209
<p>1 the way into the pelvic cavity. 2 Q. You are not a specialist in 3 women's health issues, correct? 4 MS. O'DELL: Object to the 5 form. 6 A. Well, I'm a doctor. I've 7 examined a lot of women. 8 BY MR. ZELLERS: 9 Q. Are you -- 10 MS. O'DELL: Excuse me. Are 11 you finished, sir? 12 THE WITNESS: Yes, I'm 13 finished. 14 MS. O'DELL: Okay. 15 BY MR. ZELLERS: 16 Q. Are you an expert in the 17 women's reproductive tract? 18 A. I've taken it apart and put it 19 back together again in medical school, and in 20 other settings I've done OB/GYN rotations. 21 I've participated in pelvic surgeries. I 22 understand the anatomy. 23 Q. There are physicians who are 24 specialists in the female reproductive tract;</p>	<p>1 in the body of your report to support your 2 theory that the ovaries do not have an 3 intrinsic elimination system, correct? 4 A. That's correct. 5 Q. You have not conducted any 6 tests to show that exposure to the ovaries to 7 particulate matter, if any, is longer than 8 exposure to other parts of the female 9 anatomy; is that right? 10 MS. O'DELL: Object to the 11 form. 12 A. I have not conducted any such 13 tests. 14 BY MR. ZELLERS: 15 Q. Is the cervix more or less 16 sensitive to the impact of foreign particles 17 than the ovaries? 18 MS. O'DELL: Object to the 19 form. 20 A. I think that the important 21 point is the residence time that exists, and 22 the cervix is not presented with things for 23 an extended time like the ovaries are in 24 relation to things like talc. But it is</p>

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 210</p> <p>1 sensitive. 2 BY MR. ZELLERS: 3 Q. All right. Your fourth 4 theory -- or strike that. 5 Your fourth opinion is that the 6 epidemiological studies show a positive 7 relationship between regular perineal 8 application of talcum powder and ovarian 9 cancer; is that right? 10 A. That's correct. 11 Q. The studies that you reference 12 in this opinion are referred to on pages 6 13 and 7 of your report; is that right? 14 MS. O'DELL: Object to the 15 form. 16 A. Most of them, yes. 17 BY MR. ZELLERS: 18 Q. You conclude that when 19 confounding and bias are exhaustively 20 considered -- and do you believe you've done 21 that here? 22 A. I am restating what authors of 23 the primary studies have done. I'm 24 evaluating the consistency of the evidence,</p>	<p style="text-align: right;">Page 212</p> <p>1 A. Yes. 2 MS. O'DELL: Object to the 3 form. 4 BY MR. ZELLERS: 5 Q. Are you familiar with the term 6 "person-years" as it relates to 7 epidemiological study? 8 A. Yes, I am. 9 Q. What is -- strike that. 10 How are person-years 11 calculated? 12 A. They are calculated by -- in 13 relation to an exposure or to an existing 14 treatment, they're calculated by multiplying 15 the duration of the treatment or exposure in 16 years by the number of people being studied. 17 And that -- the result is person-years. 18 Q. Can you explain the difference 19 between high-grade serous and low-grade 20 serous cancer? 21 A. High-grade serous cancer has 22 a -- is less differentiated and has a greater 23 propensity for metastasis and invasion. 24 Q. Are you aware that the</p>
<p style="text-align: right;">Page 211</p> <p>1 not the basic evidence itself. 2 Q. The apparent cause and effect 3 relationship between perineal talcum powder 4 use and ovarian cancer amounts to about a 30% 5 increased risk of ovarian cancer in talcum 6 powder users. 7 Is that your opinion in this 8 case? 9 A. It is. 10 Q. And that is your opinion from 11 reviewing the epidemiologic studies that you 12 cite in your report? 13 A. Yes. 14 Q. When epidemiologists refer to 15 the statistical power of a study, what are 16 they referring to? 17 A. Statistical power refers to the 18 ability of a study design, if carried out, to 19 detect a signal in the data of a particular 20 magnitude. 21 Q. In plain English, statistical 22 power is the likelihood that a study will 23 detect an effect when there is an effect to 24 be detected; is that fair?</p>	<p style="text-align: right;">Page 213</p> <p>1 epidemiological literature shows that these 2 are very different cancers? 3 A. They behave quite differently, 4 yes. 5 Q. Do you know what publication 6 bias is? 7 A. Yes. 8 Q. What is publication bias? 9 A. Publication bias is the 10 tendency to -- to spin a certain argument 11 in -- in order to influence acceptance of 12 publications. 13 Q. Is that a recognized issue in 14 the field of epidemiology, at least as you've 15 observed? 16 A. It's a -- it's not necessarily 17 recognized in the field of epidemiology. It 18 exists in all scientific endeavors. 19 Q. Is it something that you and 20 other physicians and experts and scientists 21 need to be aware of? 22 A. Yes. I think we're all exposed 23 to the effects of that and warned about it as 24 we go through our careers.</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 214	Page 216
<p>1 Q. When I asked you early on what 2 your methodology was, you looked at the 3 published literature, you looked at some 4 websites I think that you told us about 5 earlier, and then you performed a risk 6 assessment and considered whether perineal 7 use of talc products poses a safety risk to 8 consumers; is that right? 9 MS. O'DELL: Object to the 10 form. 11 A. Well, that's a gross 12 oversimplification of the risk assessment 13 process that I performed. 14 The review of the literature, 15 which was based on the question that I was 16 asked to address, was a fairly exhaustive one 17 which incorporated a search for every 18 pertinent publication that was available and 19 included multiple languages. 20 It then was -- proceeded into a 21 distillation of the facts that were -- that 22 were claimed based on those individual 23 studies and investigations, and a comparison 24 of those, one with another, eventually</p>	<p>1 been published as well. And I felt that was 2 sufficient to be able to produce this report 3 that addressed the question I was asked. 4 Q. As you told us earlier, you 5 have never published a meta-analysis on any 6 topic; is that right? 7 A. That's correct. 8 Q. You cite to some of the 9 available studies on talcum powder use in 10 ovarian cancer, but not to all of the 11 studies, correct? 12 MS. O'DELL: Object to the 13 form. 14 A. That's true. 15 BY MR. ZELLERS: 16 Q. What was your reasoning for 17 focusing on certain studies and excluding 18 other studies? 19 A. The studies that I referenced 20 were those that had specific aspects that 21 directly influenced my report or my 22 conclusions or that I felt were illustrative 23 of comments I was making in the report, and 24 that's why they were referenced.</p>
Page 215	Page 217
<p>1 considering them all as a whole to arrive at 2 conclusions that addressed the question. 3 BY MR. ZELLERS: 4 Q. That was your methodology; is 5 that right? 6 A. That is the methodology, yes. 7 Q. Did you consider the Bradford 8 Hill criteria or factors in reaching your 9 conclusions and opinions in this matter? 10 A. That's part of the methodology 11 which is outlined in my report. 12 Q. In analyzing the Bradford Hill 13 criteria, did you conduct a meta-analysis of 14 the available data to reach a conclusion 15 about the relative risk? 16 A. No, I did not. 17 Q. Why didn't you conduct a 18 meta-analysis for this case? 19 A. I did not have the time to do a 20 meta-analysis in this case, first of all. 21 Secondly, there have been a number of other 22 meta-analyses performed, and I had those 23 results available to me in addition to 24 various reviews of the literature that have</p>	<p>1 All of the studies may not have 2 risen to that -- the level of requiring being 3 referenced, but pretty much all the studies 4 are included in the literature that I 5 reviewed. 6 Q. You cite in the report the 7 studies that were favorable or supportive of 8 your opinions, correct? 9 A. Well, I cited a number of 10 studies, not all of which were favorable to 11 my overall opinions, at least not on the 12 surface. 13 Q. Did you cite all of the studies 14 that you believe in one way or another 15 support your opinions in this case? 16 A. I don't think so. 17 Q. You believe there are 18 additional studies that support your opinions 19 that you did not cite? 20 A. They're in the literature list. 21 Q. Did you cite the opinions that 22 refuted -- strike that. 23 Did you cite the studies that 24 refuted your opinions in this matter?</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 218	Page 220
<p>1 A. I cited some studies that had 2 opinions that -- or that had conclusions that 3 did not necessarily agree with mine, but I 4 don't think they refuted my conclusions. 5 Q. Do you believe the standard for 6 proving causation in the scientific 7 literature is the same one that applies in 8 this litigation? 9 MS. O'DELL: Object to the 10 form. 11 A. I don't know that. 12 BY MR. ZELLERS: 13 Q. A document you brought here 14 today was an FDA letter? 15 A. Yeah, I think you marked it. 16 Q. I did mark it. Why don't you 17 see if you could find it so I can ask you a 18 couple of questions about it. 19 A. There it is. That one? 20 Q. Yes. Exhibit 10 is an FDA 21 letter dated April 1st of 2014 to a 22 Dr. Epstein; is that right? 23 A. Yes. 24 Q. That is a document that you</p>	<p>1 more detail to be able to answer that 2 specifically. 3 Q. Well, essentially, based upon 4 its analysis as of 2014, the FDA concluded 5 that causation had not been established as 6 between genital talcum powder use and ovarian 7 cancer or an increased risk of ovarian 8 cancer, correct? 9 A. Well, it said that an updated 10 review failed to identify any new compelling 11 literature data or new scientific evidence. 12 I don't think they indicate here that they 13 actually did a standard review of that 14 literature. 15 Q. Well, take a look, if you will, 16 at page 4. The FDA sets forth its 17 epidemiology and etiology findings; is that 18 right? 19 A. Yes. 20 Q. The FDA has a number of very 21 capable physicians, scientists, 22 toxicologists, pharmacologists and medical 23 professionals; is that right? 24 MS. O'DELL: Object to the</p>
Page 219	Page 221
<p>1 reviewed and considered as part of your 2 analysis of this case; is that right? 3 A. Yes. 4 Q. Do you believe that that 5 exhibit, Exhibit 10, is supportive of your 6 opinions in this matter? 7 A. I don't think it's very 8 supportive. It's -- it's in response to a 9 proposal from a citizens voluntary agency to 10 provide more stringent labeling on talcum 11 powder products, and the agency rejected 12 the -- that petition. 13 Q. The FDA is the regulatory body 14 in the United States that oversees food, drug 15 and cosmetics; is that right? 16 MS. O'DELL: Object to the 17 form. 18 A. Yes. 19 BY MR. ZELLERS: 20 Q. This letter -- strike that. 21 In this letter the FDA goes 22 through and analyzes some of the Bradford 23 Hill factors; is that right? 24 A. I'd have to look at this in</p>	<p>1 form. 2 A. I don't know if they're still 3 working, but they have good people on staff. 4 BY MR. ZELLERS: 5 Q. And just so, a year or two or 6 three, if this transcript is ever reviewed, 7 we are in the midst of a shutdown of at least 8 portions of the government; is that right? 9 A. That's correct. 10 Q. And that is what your comment 11 was directed to, correct? 12 A. That is correct. 13 Q. On page 4 the FDA states: 14 After consideration of the scientific 15 literature submitted in support of both 16 citizens' petitions, FDA found. 17 And then, number 2, that 18 several of the studies acknowledge biases in 19 the study design and no single study has 20 considered all the factors that potentially 21 contribute to ovarian cancer, including 22 selection bias and/or uncontrolled 23 confounding that result in spurious positive 24 associations between talc use and ovarian</p>

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 222</p> <p>1 cancer risk.</p> <p>2 Did I read that correctly?</p> <p>3 A. You did read it correctly.</p> <p>4 Q. Does that appear to be at least</p> <p>5 one of the conclusions of the FDA after</p> <p>6 considering the scientific literature as of</p> <p>7 early 2014?</p> <p>8 MS. O'DELL: Object to the</p> <p>9 form.</p> <p>10 A. Yes, that is listed as an FDI</p> <p>11 finding -- FDA finding.</p> <p>12 BY MR. ZELLERS:</p> <p>13 Q. The FDA noted that a</p> <p>14 dose-response -- strike that.</p> <p>15 The FDA noted that</p> <p>16 dose-response evidence is lacking; is that</p> <p>17 right?</p> <p>18 A. A dose-response --</p> <p>19 Q. Two things. The FDA notes that</p> <p>20 there's a lack of consistency in the study</p> <p>21 results, correct?</p> <p>22 MS. O'DELL: Where are you</p> <p>23 reading? I'm sorry.</p> <p>24 MR. ZELLERS: I'm looking at</p>	<p style="text-align: right;">Page 224</p> <p>1 form.</p> <p>2 A. That is correct.</p> <p>3 BY MR. ZELLERS:</p> <p>4 Q. You are a paid expert for the</p> <p>5 plaintiffs in this litigation; is that right?</p> <p>6 A. That is correct.</p> <p>7 Q. To your knowledge, the FDA is</p> <p>8 not paid -- well, let me withdraw that.</p> <p>9 A. I wouldn't go out on a limb</p> <p>10 there.</p> <p>11 Q. Number 4, Conclusion 4, a</p> <p>12 cogent biological mechanism by which talc</p> <p>13 might lead to ovarian cancer is lacking.</p> <p>14 Exposure to talc does not account for all</p> <p>15 cases of ovarian cancer and there was no</p> <p>16 scientific consensus on the proportion of</p> <p>17 ovarian cancer cases that may be caused by</p> <p>18 talc exposure.</p> <p>19 Was that a conclusion of the</p> <p>20 FDA based upon its review of the</p> <p>21 epidemiologic literature?</p> <p>22 MS. O'DELL: Object to the</p> <p>23 form.</p> <p>24 A. Yes, it was, and it's one that</p>
<p style="text-align: right;">Page 223</p> <p>1 Conclusion 3.</p> <p>2 THE WITNESS: Point 3.</p> <p>3 A. They found that the</p> <p>4 case-control studies did not demonstrate a</p> <p>5 consistent positive association across</p> <p>6 studies; although some studies have found</p> <p>7 small positive associations between talc and</p> <p>8 ovarian cancer, but lower confidence limits</p> <p>9 are often close to 1, and dose-response</p> <p>10 evidence is lacking.</p> <p>11 BY MR. ZELLERS:</p> <p>12 Q. That was FDA's conclusion</p> <p>13 number 3 based upon its review of the</p> <p>14 scientific literature; is that right?</p> <p>15 MS. O'DELL: Object to the</p> <p>16 form.</p> <p>17 A. It's correct. It's not a valid</p> <p>18 interpretation of the statistical results,</p> <p>19 but that was one of their findings.</p> <p>20 BY MR. ZELLERS:</p> <p>21 Q. Well, that was their finding.</p> <p>22 You disagree at least in part with their</p> <p>23 finding; is that right?</p> <p>24 MS. O'DELL: Object to the</p>	<p style="text-align: right;">Page 225</p> <p>1 I also disagree with.</p> <p>2 BY MR. ZELLERS:</p> <p>3 Q. IARC also considered the</p> <p>4 Bradford Hill considerations; is that right?</p> <p>5 A. Yes, it did.</p> <p>6 Q. IARC rejected classification of</p> <p>7 talc as a carcinogenic, instead assigning it</p> <p>8 to the classification of possibly</p> <p>9 carcinogenic to humans; is that correct?</p> <p>10 A. That's correct.</p> <p>11 Q. We've already discussed the</p> <p>12 IARC categories briefly, but let's mark a</p> <p>13 document from the IARC website as to the</p> <p>14 classifications, Exhibit 21.</p> <p>15 (Carson Deposition Exhibit 21</p> <p>16 marked.)</p> <p>17 BY MR. ZELLERS:</p> <p>18 Q. Tell me if you recognize that.</p> <p>19 A. Yes.</p> <p>20 Q. Exhibit 21 is from the IARC</p> <p>21 website, and it goes through the</p> <p>22 classifications of different agents that have</p> <p>23 been made by the International Agency for</p> <p>24 Research on Cancer; is that right?</p>

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 226</p> <p>1 A. Yes, that's correct.</p> <p>2 Q. It has studied and included 120</p> <p>3 agents in the Group 1 category, which is</p> <p>4 carcinogenic to humans, correct?</p> <p>5 A. That's correct.</p> <p>6 Q. That's the only category in</p> <p>7 which IARC finds sufficient evidence in</p> <p>8 humans, correct?</p> <p>9 MS. O'DELL: Object to the</p> <p>10 form.</p> <p>11 A. That's the category that</p> <p>12 represents substances for which there is</p> <p>13 sufficient and irrefutable evidence of human</p> <p>14 carcinogenesis.</p> <p>15 BY MR. ZELLERS:</p> <p>16 Q. It lists 82 agents in Group 2A</p> <p>17 as being probably carcinogenic to humans; is</p> <p>18 that right?</p> <p>19 A. That's correct.</p> <p>20 Q. IARC is certainly willing to</p> <p>21 declare agents as either a known or probable</p> <p>22 carcinogen; is that right?</p> <p>23 A. That's correct.</p> <p>24 Q. There is only one agent in</p>	<p style="text-align: right;">Page 228</p> <p>1 MS. O'DELL: Object to the</p> <p>2 form.</p> <p>3 A. I think limited evidence also</p> <p>4 refers to just the number of studies that</p> <p>5 have been performed as well as the quality of</p> <p>6 the studies.</p> <p>7 BY MR. ZELLERS:</p> <p>8 Q. Well, based upon the evidence</p> <p>9 that is available, the studies that are</p> <p>10 available, a 2B designation by IARC means</p> <p>11 that IARC cannot rule out chance, bias or</p> <p>12 confounding with reasonable confidence,</p> <p>13 correct?</p> <p>14 MS. O'DELL: Objection, asked</p> <p>15 and answered.</p> <p>16 A. Not always the case.</p> <p>17 BY MR. ZELLERS:</p> <p>18 Q. That's part of the definition,</p> <p>19 isn't it?</p> <p>20 A. I don't believe it applies to</p> <p>21 every agent or every evaluation.</p> <p>22 Q. Well, I'll not take the time to</p> <p>23 go through the IARC definitions; if we at the</p> <p>24 end of the day have extra time, we'll go back</p>
<p style="text-align: right;">Page 227</p> <p>1 Group 4, probably not carcinogenic to humans,</p> <p>2 correct?</p> <p>3 A. Yes. I thought that number had</p> <p>4 gone up recently, but the date here is</p> <p>5 November 2018, so some may have been moved</p> <p>6 back into Group 3.</p> <p>7 Q. So out of the over 1,000 agents</p> <p>8 that IARC has reviewed, it's only placed one</p> <p>9 agent in the Group 4 category, probably not</p> <p>10 carcinogenic; is that right?</p> <p>11 A. That's correct.</p> <p>12 Q. There is no Group 5, not</p> <p>13 carcinogenic; is that right?</p> <p>14 A. That's correct.</p> <p>15 Q. With genital talc, IARC</p> <p>16 Group 2B designation -- well, strike that.</p> <p>17 Genital talc is listed as an</p> <p>18 IARC Group 2B designated substance; is that</p> <p>19 right?</p> <p>20 A. That's correct.</p> <p>21 Q. That's based on limited</p> <p>22 evidence in humans, which means that IARC</p> <p>23 cannot rule out chance, bias or confounding</p> <p>24 with reasonable confidence, correct?</p>	<p style="text-align: right;">Page 229</p> <p>1 and we'll take a look.</p> <p>2 What else is in the Class 2B,</p> <p>3 possibly carcinogenic. Ginkgo biloba, is</p> <p>4 that something you're aware of that's in that</p> <p>5 category?</p> <p>6 MS. O'DELL: Object to the</p> <p>7 form.</p> <p>8 A. That's a biological material.</p> <p>9 BY MR. ZELLERS:</p> <p>10 Q. Pickled vegetables?</p> <p>11 A. That may be in Group 2B.</p> <p>12 Q. Occupational carpentry and</p> <p>13 joinery?</p> <p>14 MS. O'DELL: Objection to form.</p> <p>15 A. That's wood dust exposure.</p> <p>16 BY MR. ZELLERS:</p> <p>17 Q. Also 2B; is that right?</p> <p>18 A. Wood dust itself is Group 1.</p> <p>19 The occupation is Group 2B.</p> <p>20 Q. Let me ask you about some</p> <p>21 individual Bradford Hill criteria. On</p> <p>22 page 10 of your report, you state that you</p> <p>23 gave the most weight to strength of</p> <p>24 association, consistency and biologic</p>

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 230</p> <p>1 plausibility; is that right?</p> <p>2 A. That's correct.</p> <p>3 Q. How much weight did you give to</p> <p>4 the other six factors?</p> <p>5 A. Sufficient.</p> <p>6 Q. Why did you put less weight on</p> <p>7 those?</p> <p>8 A. Because the strength of</p> <p>9 association, the consistency of the evidence</p> <p>10 and the biological plausibility of perineal</p> <p>11 talc, talcum powder application as</p> <p>12 responsible for the occurrence of ovarian</p> <p>13 cancer was compelling.</p> <p>14 Q. FDA focused on dose, correct?</p> <p>15 A. Yes.</p> <p>16 Q. You did not; is that right?</p> <p>17 A. That's right.</p> <p>18 Q. The first Bradford Hill factor</p> <p>19 that you focused on was strength of</p> <p>20 association.</p> <p>21 What association does the</p> <p>22 literature report between talc use and</p> <p>23 ovarian cancer?</p> <p>24 A. Overall, evaluating the</p>	<p style="text-align: right;">Page 232</p> <p>1 been failed attempts, but they have been</p> <p>2 attempts to estimate the quantity of powder</p> <p>3 that you start with and the amount that</p> <p>4 results in the application to the perineum by</p> <p>5 using models and actually doing some</p> <p>6 measurements and recording activities.</p> <p>7 BY MR. ZELLERS:</p> <p>8 Q. You did not do any modeling or</p> <p>9 any assessment of the quantity of baby powder</p> <p>10 that was involved with daily use; is that</p> <p>11 right?</p> <p>12 A. No, I relied on those others.</p> <p>13 Q. When you say 30% increased</p> <p>14 risk, that's a 1.3 odds ratio; is that right?</p> <p>15 A. That's correct.</p> <p>16 Q. And that comes largely from the</p> <p>17 case-control studies, correct?</p> <p>18 MS. O'DELL: Object to the</p> <p>19 form.</p> <p>20 A. Yes, but it's also consistent</p> <p>21 with some of the information from the cohort</p> <p>22 studies.</p> <p>23 BY MR. ZELLERS:</p> <p>24 Q. Epidemiologists consider a 1.3</p>
<p style="text-align: right;">Page 231</p> <p>1 universe of research, epidemiologic research</p> <p>2 that's been done on this, it shows an average</p> <p>3 30% increase in ovarian cancer risk for those</p> <p>4 who regularly apply talcum powder to the</p> <p>5 perineum.</p> <p>6 Q. Regular application of talcum</p> <p>7 powder means what?</p> <p>8 A. It -- I believe that it means</p> <p>9 daily or thereabouts.</p> <p>10 Q. In what form of application?</p> <p>11 A. Talcum powder.</p> <p>12 Q. In what amount?</p> <p>13 A. Whatever is necessary or</p> <p>14 desired by the user.</p> <p>15 Q. Does that vary from woman to</p> <p>16 woman?</p> <p>17 A. It does.</p> <p>18 Q. Did you make any attempt to</p> <p>19 assess what regular use of talcum powder was?</p> <p>20 MS. O'DELL: Object to the</p> <p>21 form.</p> <p>22 A. There have been a couple of</p> <p>23 attempts to try to quantify what -- what that</p> <p>24 means. I think for the most part they've</p>	<p style="text-align: right;">Page 233</p> <p>1 odds ratio in a case-control study to be a</p> <p>2 weak or modest association; is that right?</p> <p>3 MS. O'DELL: Object to the</p> <p>4 form.</p> <p>5 A. That's correct.</p> <p>6 BY MR. ZELLERS:</p> <p>7 Q. Where here we're talking only</p> <p>8 about statistical associations, not</p> <p>9 causation, correct?</p> <p>10 MS. O'DELL: Object to the</p> <p>11 form.</p> <p>12 A. Well, association eventually</p> <p>13 becomes causation when the -- when the</p> <p>14 evidence mounts to a point where it becomes</p> <p>15 recognized by all of the players that this is</p> <p>16 what's going on.</p> <p>17 A 30% increase may be</p> <p>18 classified by epidemiologists as weak or</p> <p>19 modest, but if you look at the number of</p> <p>20 women in this country who die each year from</p> <p>21 this fatal disease, that represents about</p> <p>22 3,000 lives that could potentially be saved</p> <p>23 through prevention.</p> <p>24 Q. There is not a --</p>

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 234</p> <p>1 MS. BOCKUS: Excuse me, I need 2 to object as nonresponsive. 3 MR. ZELLERS: Yes, join. 4 BY MR. ZELLERS: 5 Q. There is not a consensus at 6 this time with respect to any causation 7 relating to genital talc and ovarian cancer, 8 is there? 9 MS. O'DELL: Objection to the 10 form. 11 A. I believe that that consensus 12 is building. 13 BY MR. ZELLERS: 14 Q. FDA -- that's not FDA's 15 position, correct? 16 MS. O'DELL: Object to the 17 form. 18 A. Not at the moment. 19 BY MR. ZELLERS: 20 Q. That's not the position of the 21 National Cancer Institute; is that right? 22 A. That's correct. 23 Q. That's not the position of the 24 CDC; is that correct?</p>	<p style="text-align: right;">Page 236</p> <p>1 epidemiologists are concerned, correct? 2 MS. O'DELL: Object to -- 3 object to the form. 4 A. It's an increased risk that 5 translates into human lives, so it depends on 6 your point of view. 7 MS. BOCKUS: Object to form -- 8 I mean, sorry, nonresponsive, move to 9 strike. 10 MR. ZELLERS: Join. 11 MS. O'DELL: Oppose. 12 DR. THOMPSON: Agreed. 13 BY MR. ZELLERS: 14 Q. The 1.3 relative risk that you 15 believe generally applies, that would relate 16 to epithelial cancers; is that right? 17 A. Yes. 18 Q. That's what you're limiting 19 your opinions to in this case, correct? 20 MS. O'DELL: Object to the 21 form. 22 A. Well, these opinions relate to 23 several of the cancers that have shown 24 increases in these background epidemiologic</p>
<p style="text-align: right;">Page 235</p> <p>1 A. That's correct. 2 Q. IARC does not refer to any 3 association between perineal talc use and 4 ovarian cancer as a strong association, does 5 it? 6 MS. O'DELL: Object to the 7 form. 8 A. It calls it a Group 2B 9 carcinogen, which is fairly significant. 10 BY MR. ZELLERS: 11 Q. Well, we discussed a few 12 minutes ago that if an agent is a Group 2B 13 carcinogen, that is based on limited evidence 14 in humans; is that right? 15 A. That's correct. 16 Q. All right. Your opinions on 17 strength of association, do they apply 18 equally to all forms of ovarian cancer? 19 A. No, they don't. These apply to 20 the epithelial ovarian cancer spectrum. 21 Q. Your opinions in terms of there 22 being a -- well, let me withdraw that. 23 We've agreed that 1.3 is not a 24 strong association, at least insofar as</p>	<p style="text-align: right;">Page 237</p> <p>1 studies, which include the epithelial ovarian 2 cancers, including the serous; the borderline 3 cancers are also showing increases in some of 4 the studies. So it's the group of those 5 cancers, yes. 6 BY MR. ZELLERS: 7 Q. The cohort studies, prospective 8 cohort studies, have not shown an association 9 between talc and ovarian cancer, correct? 10 MS. O'DELL: Object to the 11 form. 12 A. They have in some subtypes. 13 BY MR. ZELLERS: 14 Q. There was an initial 15 description with respect to the first Nurses' 16 study that was not supported in the update of 17 that study; is that correct? 18 A. The Nurses' Health Study? 19 Q. Yes. 20 A. Yes, that's correct. 21 Q. Let's look at a different 22 criteria, consistency. The literature does 23 not show a consistent association between 24 talc use and ovarian cancer, correct?</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 238	Page 240
<p>1 MS. O'DELL: Object to the 2 form. 3 A. I believe that, in fact, 4 research shows -- does show a consistent 5 pattern. 6 BY MR. ZELLERS: 7 Q. The cohort studies do not show 8 an association between talc use and ovarian 9 cancer as we just discussed, correct? 10 A. The basic cohort studies that 11 look at all of the subjects and all of the 12 cancers together typically do not rise to the 13 level of significance. 14 Q. The hospital-based case-control 15 studies collectively do not show an 16 association between talc use and ovarian 17 cancer, correct? 18 A. I sort of discount the 19 distinction between the hospital-based 20 studies and the community-based studies. I'm 21 not sure whether there are valid reasons to 22 consider those differently. 23 Q. We've discussed earlier that 24 you are not an epidemiologist; is that right?</p>	<p>1 ill patients in the community to healthy 2 people in the community, correct? 3 A. In some cases that might be 4 correct, but I'm not sure that's any -- in 5 any sort of world an advantage. 6 Q. Well, shouldn't there be 7 consistency if the Bradford Hill criteria is 8 to be -- well, strike that. 9 In applying the Bradford Hill 10 criteria of consistency, there should be 11 consistency across different types of 12 studies, cohort studies, hospital-based 13 case-control studies, and population-based 14 case-control studies, correct? 15 MS. O'DELL: Object to the 16 form. 17 A. That's correct. 18 BY MR. ZELLERS: 19 Q. Isn't the absence of an 20 association in the cohort studies especially 21 significant in that the study design for the 22 cohort studies reduces the likelihood of 23 recall bias? 24 A. There are many forms of bias</p>
Page 239	Page 241
<p>1 MS. O'DELL: Object to the 2 form, misstates his testimony. 3 A. I don't think I necessarily 4 agreed to that characterization because I 5 deal a lot with epidemiologic work. I'm a 6 faculty member in the Department of 7 Epidemiology at the University of Texas 8 School of Public Health, and some may 9 consider me an epidemiologist. 10 BY MR. ZELLERS: 11 Q. Do you consider yourself an 12 expert in epidemiology? 13 A. No. 14 Q. Do you agree -- well, do you 15 agree that hospital-based case-control 16 studies are less susceptible to selection 17 bias than population-based case-control 18 studies? 19 A. It depends on the methodology 20 that's used to recruit the study subjects. 21 Q. With hospital-based 22 case-controlled studies, you're more likely 23 to be comparing hospitalized patients to 24 hospitalized patients rather than comparing</p>	<p>1 that study designers need to consider in the 2 process of designing a study, and there are 3 even more types of bias that are discovered 4 after a study has begun. 5 You can fault case-control 6 studies for being particularly sensitive to 7 recall bias, but many of these authors who 8 perform these studies indicated that they 9 were well aware of that bias potential and 10 took measures to avoid it. 11 The same thing can be said 12 about cohort studies. They suffer from other 13 forms of bias, misclassification in 14 particular. They may also suffer from the 15 fact that they are extremely expensive, have 16 long duration, and require very large numbers 17 of subjects in order to carry them out and 18 are frequently underpowered and unable to 19 arrive at the conclusions that they seek for 20 that reason. 21 MR. ZELLERS: Move to strike as 22 nonresponsive. 23 BY MR. ZELLERS: 24 Q. Is it possible that recall bias</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 242	Page 244
<p>1 explains the difference between the cohort 2 studies and the retrospective case-control 3 studies? 4 MS. O'DELL: Object to form, 5 asked and answered. 6 A. I don't believe that that is 7 the case. 8 BY MR. ZELLERS: 9 Q. Is it possible? 10 MS. O'DELL: Objection. 11 A. Theoretically it would be 12 possible. 13 BY MR. ZELLERS: 14 Q. Are you familiar with the 15 Berge -- Berge 2017 study? 16 A. Yes. 17 Q. Is that a study that you cite 18 and reviewed and rely on? 19 A. It was a meta-analysis. 20 Q. Is that a meta-analysis that 21 you cite, review and have relied upon? 22 A. Yes. 23 Q. Take a look, if you will, at 24 Exhibit 22.</p>	<p>1 paragraph. Reading from the second full 2 paragraph, the authors discuss the fact that 3 the association between genital talc use and 4 risk of ovarian cancer is present in 5 case-control but not in cohort studies, can 6 be attributed to bias in the former type of 7 studies; is that right? 8 MS. O'DELL: Object to the 9 form. 10 A. That's what it says. 11 BY MR. ZELLERS: 12 Q. Then continuing down: 13 Information bias from retrospective 14 self-report of talc use is a possible 15 explanation for the association detected in 16 case-control studies. 17 Is that right? 18 A. That's what it says. 19 Q. What was your methodology for 20 discounting the effect of recall bias in the 21 population-based case-control studies? 22 A. The fact that several authors 23 discussed the possibility of recall bias and 24 incorporated methodology for avoiding recall</p>
Page 243	Page 245
<p>1 (Carson Deposition Exhibit 22 2 marked.) 3 THE WITNESS: Thank you. 4 MS. O'DELL: Thank you. 5 BY MR. ZELLERS: 6 Q. You're familiar with this 7 meta-analysis; is that right? 8 A. Yes. 9 Q. The authors conclude that 10 information bias from retrospective 11 self-report of talc use is a possible 12 explanation for the association detected in 13 case-control studies; is that right? 14 MS. O'DELL: I'm sorry, are you 15 reading from a certain page? 16 MR. ZELLERS: I am. 17 MS. O'DELL: Can you direct it 18 to us, please? 19 THE WITNESS: Could you tell us 20 where that is? 21 MR. ZELLERS: Sure. 22 BY MR. ZELLERS: 23 Q. Take a look if you will on 24 page 6, the right-hand column, third</p>	<p>1 bias, for example, placing parallel questions 2 that should be affected in the same way, and 3 still showed a positive result for talc and 4 ovarian cancer is one reason. 5 The other has to do with 6 consistency of the results, and although 7 you've stated that from these various 8 documents, including this quotation, that the 9 case-control studies showed positive 10 associations but the cohort studies did not, 11 I would -- I would refute that by saying that 12 all of the -- the vast majority of all of the 13 studies show a positive odds ratio or 14 relative risk, even if they don't rise to the 15 level of significance. 16 If these results were obtained 17 simply by chance, you would expect an equal 18 number of positive results and negative 19 results, but we don't have that here. We 20 have practically all positive results with 21 three or four outliers. 22 And so -- 23 Q. We looked at the Taher paper 24 early on in this deposition where Taher</p>

62 (Pages 242 to 245)

Arch I. "Chip" Carson, M.D., Ph.D.

Page 246	Page 248
<p>1 concluded that 15 out of the 30 case-control 2 studies reported a statistically significant 3 association between genital talc use and 4 ovarian cancer, correct? 5 A. That's correct, but you're 6 not -- you're not talking about the other 15. 7 Q. The hospital-based case-control 8 studies collectively do not show a 9 statistically significant association between 10 talc use and ovarian cancer, correct? 11 MS. O'DELL: Object to the 12 form. 13 A. I don't know that that is the 14 case. 15 BY MR. ZELLERS: 16 Q. You don't know that it's not 17 the case; you'd have to go back and relook at 18 the studies, fair? 19 A. I'd have to look through here, 20 which I'm happy to do if you want me to, but 21 I don't believe that that's the case. 22 Q. In fact, the author, you cite 23 the Langseth paper, a 2008 paper, as 24 supportive of your position; is that right?</p>	<p>1 page. 2 MS. O'DELL: Object to the 3 form. 4 BY MR. ZELLERS: 5 Q. Is that the conclusion of the 6 authors? 7 A. What I'm reading here is on 8 balance, the epidemiological evidence 9 suggests that the use of cosmetic talc in the 10 perineal area may be associated with ovarian 11 cancer risk. The mechanism of 12 carcinogenicity may be related to 13 inflammation. 14 Q. Take a look at the paragraph on 15 the right-hand side under Proposal to 16 Research Community. I'm looking at the 17 second page of the Langseth article. 18 Are you there? 19 A. Yes, I am. 20 Q. The authors state: The current 21 body of experimental and epidemiological 22 evidence is insufficient to establish a 23 causal association between perineal use of 24 talc and ovarian cancer risk.</p>
Page 247	Page 249
<p>1 A. Yes. 2 Q. I'll mark that 3 Deposition Exhibit 23. 4 A. I think it was 2004, was it 5 not? 6 Q. Well, I'm going to hand it to 7 you and we can look at it together. 8 (Carson Deposition Exhibit 23 9 marked.) 10 A. Okay. 11 BY MR. ZELLERS: 12 Q. You're familiar with the 13 Langseth paper; is that right? 14 A. Yes. 15 (Comments off the stenographic 16 record.) 17 BY MR. ZELLERS: 18 Q. Langseth and the authors 19 concluded that the current body of 20 experimental and epidemiological evidence is 21 insufficient to establish a causal 22 association between perineal use of talc and 23 ovarian cancer risk; is that right? 24 And I'm looking at the second</p>	<p>1 Is that right? 2 MS. O'DELL: Object to the 3 form. 4 A. That's what it says. 5 BY MR. ZELLERS: 6 Q. Experimental research is needed 7 to better characterize deposition, retention 8 and clearance of talc to evaluate the ovarian 9 carcinogenicity of talc. 10 Is that what the authors state? 11 A. Well, that's what it says, but 12 it says much more. In fact, the editors of 13 the journal, in the section on the next page 14 that is titled What This Study Adds, say: 15 Epidemiological evidence suggests that the 16 use of cosmetic talc in the perineal area may 17 be associated with ovarian cancer risk. The 18 IARC has classified this use of talc as 19 possibly carcinogenic to human beings, 20 Group 2B. The mechanism of carcinogenicity 21 may be related to inflammation. This paper 22 focused on the high degree of consistency in 23 the studies accomplished so far and what 24 should be the focus in future studies.</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 250	Page 252
<p>1 So I --</p> <p>2 Q. And then the conclusion is what</p> <p>3 I read, that: The current body of</p> <p>4 experimental and epidemiological evidence is</p> <p>5 insufficient to establish a causal</p> <p>6 association between perineal use of talc and</p> <p>7 ovarian cancer risk.</p> <p>8 Correct?</p> <p>9 MS. O'DELL: Object to the</p> <p>10 form.</p> <p>11 A. That is what it says, but this</p> <p>12 was accepted in 2007, which was now 12 years</p> <p>13 ago.</p> <p>14 BY MR. ZELLERS:</p> <p>15 Q. Let me ask you about the cohort</p> <p>16 studies. They involved a much greater number</p> <p>17 of women than the case-controlled studies; is</p> <p>18 that right?</p> <p>19 MS. O'DELL: Object to the</p> <p>20 form.</p> <p>21 A. Well, they did not involve more</p> <p>22 cases, but they involved more women because</p> <p>23 in order to do a cohort study, you have to</p> <p>24 start with a huge group of people and wait</p>	<p>1 doesn't happen.</p> <p>2 Q. Is it your testimony that the</p> <p>3 cohort studies relating to genital talc use</p> <p>4 and ovarian cancer are spinning the roulette</p> <p>5 wheel?</p> <p>6 MS. O'DELL: Object to the</p> <p>7 form.</p> <p>8 A. In terms of the power of the</p> <p>9 studies to detect a meaningful difference</p> <p>10 among the subjects, yes.</p> <p>11 BY MR. ZELLERS:</p> <p>12 Q. That's your testimony as an</p> <p>13 expert in this case; is that right?</p> <p>14 A. It is my testimony that cohort</p> <p>15 studies, including these, are chronic -- or</p> <p>16 quite often underpowered simply because of</p> <p>17 the expense associated with performing these</p> <p>18 studies.</p> <p>19 Q. What analysis did you do to</p> <p>20 conclude that the cohort studies in this</p> <p>21 area, the four cohort studies, are</p> <p>22 underpowered?</p> <p>23 A. Like I just mentioned to you, I</p> <p>24 read the studies and looked at their</p>
Page 251	Page 253
<p>1 for them to develop cancers, and then count</p> <p>2 those cancers.</p> <p>3 BY MR. ZELLERS:</p> <p>4 Q. What was your methodology for</p> <p>5 weighing the power of the cohort studies</p> <p>6 versus the case-control studies?</p> <p>7 A. The cohort studies, it wasn't</p> <p>8 apparent in every research report exactly how</p> <p>9 they had done their sample size calculations</p> <p>10 and power determinations, but in many cases</p> <p>11 the lack of arriving at conclusions was</p> <p>12 simply due to an inability to detect an</p> <p>13 effect in the cohort studies, not that they</p> <p>14 detected that there was not an effect. And</p> <p>15 that's unfortunately a disadvantage of an</p> <p>16 underpowered study.</p> <p>17 Q. Is it your testimony that the</p> <p>18 cohort studies are underpowered?</p> <p>19 A. I think by and large most</p> <p>20 cohort studies are underpowered and --</p> <p>21 because power calculations are based on</p> <p>22 chance. Investigators are sort of spinning</p> <p>23 the roulette wheel and hoping that the number</p> <p>24 that they want comes up. In some cases that</p>	<p>1 conclusions, and their conclusions were not</p> <p>2 that the effect didn't exist, but they</p> <p>3 couldn't detect it.</p> <p>4 MR. ZELLERS: Let's go off the</p> <p>5 record because we need to change our</p> <p>6 tape.</p> <p>7 THE VIDEOGRAPHER: We're off</p> <p>8 the record at 3:06, end of Tape 3.</p> <p>9 (Recess taken, 3:06 p m. to</p> <p>10 3:19 p m.)</p> <p>11 THE VIDEOGRAPHER: We're on the</p> <p>12 record at 3:19, beginning of Tape 4.</p> <p>13 BY MR. ZELLERS:</p> <p>14 Q. Dr. Carson, you are not a</p> <p>15 statistician, correct?</p> <p>16 A. That's correct.</p> <p>17 Q. You are not a biostatistician;</p> <p>18 is that right?</p> <p>19 A. That's right.</p> <p>20 Q. Do you agree that some of the</p> <p>21 case-control studies have shown statistically</p> <p>22 significant findings and others have not?</p> <p>23 A. I do agree that.</p> <p>24 Q. If a study does not show a</p>

64 (Pages 250 to 253)

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 254</p> <p>1 statistically significant association, it 2 could mean that no risk exists, as we've 3 discussed; is that right? 4 A. That's correct. 5 Q. What methodology did you use to 6 weigh the lack of statistical significance 7 across studies? 8 MS. O'DELL: Object to the 9 form. 10 A. Across all of the case-control 11 studies? 12 BY MR. ZELLERS: 13 Q. Yes. 14 A. I simply treated them as 15 isolated research designs that were done on 16 different populations in different places 17 with different considerations. They were not 18 necessarily comparable, like apples to apples 19 or oranges to oranges; they were very 20 different studies in most cases, and so I 21 felt it was important to allow their findings 22 to stand on their own. 23 Q. I want to talk to you about 24 dose-response. That's another of the</p>	<p style="text-align: right;">Page 256</p> <p>1 front of you? 2 A. I do. 3 I would also add that the 4 Penninkilampi meta-analysis also found a 5 dose-response. 6 Q. Do you mention Penninkilampi at 7 all in your report? 8 A. It's cited. 9 Q. In the body of your report? 10 A. I think it's in there 11 somewhere. 12 Q. You believe it is; is that 13 right? 14 A. I do. 15 Q. Well, I'll ask you a couple of 16 questions about it then. 17 Before I do, let's talk a 18 little bit more about your report. So go to 19 page 7. You state at the very top of that 20 page that it has been difficult to estimate 21 dose in order to evaluate the dose-response 22 relationship for ovarian cancer; is that 23 right? 24 A. That's correct.</p>
<p style="text-align: right;">Page 255</p> <p>1 Bradford Hill criteria; is that right? 2 A. That's correct. 3 Q. Which studies show a 4 dose-response, talc exposure and ovarian 5 cancer? 6 A. Let me see here. I'm looking 7 at my notes. The Harlow study from 1992 8 showed a dose-response, and the Cramer 2016 9 study showed a dose trend with strong odds 10 ratios for premenopausal women and hormone 11 therapy-treated women with greater than 12 24 years of exposure. 13 The Schildkraut study, also a 14 case-controlled study of 2016, showed a 15 dose-response. 16 Q. There are a number of studies 17 that did not show a dose-response; is that 18 right? 19 A. It's correct. They did not 20 necessarily show there was not a 21 dose-response. They just, as I was 22 mentioning before, were unable to detect a 23 dose-response. 24 Q. Do you have your report in</p>	<p style="text-align: right;">Page 257</p> <p>1 Q. You state that it also has been 2 difficult to exactly estimate the quantity of 3 talcum powder administration during personal 4 hygiene activities; is that right? 5 A. That's correct. 6 Q. Let's look at a couple of the 7 studies that you believe do, in fact, show a 8 dose-response. The Penninkilampi, that's a 9 meta-analysis, 2018; is that right? 10 A. That's correct. 11 Q. That study does not consider or 12 include the Gertic 2010 cohort study; is that 13 right? 14 A. I -- I'd have to look at the 15 table, but yes, that one may be left out. 16 Q. Well, that's a significant 17 study to leave out of an analysis, isn't it? 18 MS. O'DELL: Object to the 19 form. 20 THE WITNESS: I'm getting 21 there. 22 (Document review.) 23 THE WITNESS: Apologies, I have 24 binder block here.</p>

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 258</p> <p>1 MS. O'DELL: You need help?</p> <p>2 THE WITNESS: Okay.</p> <p>3 BY MR. ZELLERS:</p> <p>4 Q. And I misspoke. I meant to</p> <p>5 refer to Gates, the updated Nurses' study.</p> <p>6 So Gates 2010.</p> <p>7 A. Yes, it appears that Gates is</p> <p>8 not included in the -- in the spectrum of</p> <p>9 studies considering; the Gertic study does</p> <p>10 appear.</p> <p>11 Q. Gates 2010 is an important</p> <p>12 cohort study in this area, would you agree?</p> <p>13 MS. O'DELL: Object to the</p> <p>14 form.</p> <p>15 A. It's important, but I think it</p> <p>16 may be considered one of the ones that</p> <p>17 suffered from power issues. It wasn't able</p> <p>18 to determine a relative risk in the</p> <p>19 population that it assessed.</p> <p>20 BY MR. ZELLERS:</p> <p>21 Q. There are a number of the</p> <p>22 case-control studies that did not determine a</p> <p>23 relative risk, at least of statistical</p> <p>24 significance, correct?</p>	<p style="text-align: right;">Page 260</p> <p>1 Q. This is my highlighted copy, so</p> <p>2 I'm sure it wasn't yours.</p> <p>3 A. I'm sorry.</p> <p>4 Q. That's all right. We'll --</p> <p>5 take your time.</p> <p>6 A. Here we are.</p> <p>7 Q. Got it, Exhibit 20?</p> <p>8 A. I think so.</p> <p>9 Q. Do you have the Cramer study in</p> <p>10 front of you?</p> <p>11 A. I do.</p> <p>12 Q. It's a retrospective</p> <p>13 case-control study published in 2016; is that</p> <p>14 right?</p> <p>15 A. That's correct.</p> <p>16 Q. If we look at the table of</p> <p>17 results on page 337, Table 1.</p> <p>18 Do you see that?</p> <p>19 A. Yes.</p> <p>20 Q. This table shows the risk of</p> <p>21 ovarian cancer for women who use talc, talcum</p> <p>22 powder, daily; is that right?</p> <p>23 MS. O'DELL: Object to the</p> <p>24 form.</p>
<p style="text-align: right;">Page 259</p> <p>1 A. Well, they determined odds</p> <p>2 ratios, which is the equivalent of relative</p> <p>3 risk for a case-control study.</p> <p>4 Q. And in a number of those</p> <p>5 case-control studies, at least 15 out of the</p> <p>6 30 relative risk was not -- or strike that --</p> <p>7 statistical significance was not achieved in</p> <p>8 the study; is that right?</p> <p>9 MS. O'DELL: Object to the</p> <p>10 form.</p> <p>11 A. That's correct.</p> <p>12 BY MR. ZELLERS:</p> <p>13 Q. Let's look at the Cramer paper.</p> <p>14 We've talked about this earlier.</p> <p>15 A. Which one, the 2016?</p> <p>16 Q. Exhibit 20, yes, 2016.</p> <p>17 A. Okay.</p> <p>18 Q. This is another study that you</p> <p>19 cite as being supportive of your</p> <p>20 dose-response opinion; is that right?</p> <p>21 A. Yes.</p> <p>22 Q. Tell me when you have it.</p> <p>23 A. I think you may have picked up</p> <p>24 my copy or the copy that I was looking at.</p>	<p style="text-align: right;">Page 261</p> <p>1 A. It does.</p> <p>2 BY MR. ZELLERS:</p> <p>3 Q. And it's four different periods</p> <p>4 of time; one year, one to five years, five to</p> <p>5 20 years and more than 20 years; is that</p> <p>6 right?</p> <p>7 A. That's correct.</p> <p>8 Q. There was only statistical</p> <p>9 significance found for the time period of one</p> <p>10 to five years of use and more than 20 years</p> <p>11 of use; is that right?</p> <p>12 A. For the first group, the -- for</p> <p>13 those who reported months year of use --</p> <p>14 months per year of use.</p> <p>15 Q. Well, for the first group,</p> <p>16 which was equivalent to one year of daily</p> <p>17 use, there was no statistical significance;</p> <p>18 is that right?</p> <p>19 MS. O'DELL: Object to the</p> <p>20 form.</p> <p>21 A. That -- well, the -- there was</p> <p>22 a positive odds ratio with a nonsignificant</p> <p>23 95% confidence interval.</p> <p>24 ///</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 262	Page 264
<p>1 BY MR. ZELLERS: 2 Q. Meaning that if you look at 3 this study, that it is certainly possible 4 that because there is not statistical 5 significance, there could be a finding of no 6 risk, correct, no increased risk? 7 A. That's a possibility. 8 Q. Then if we go to the next 9 period, we do show a dose-response for talcum 10 powder use in the year -- years one to five; 11 is that right? 12 A. Well, one to five years of 13 daily use, yes. 14 Q. But then when we look at five 15 to 20 years of daily use, there is not a 16 statistically significant association; is 17 that right? 18 A. That's correct. 19 Q. But then when we go to greater 20 than 20 years, we do find a statistical 21 association; is that right? 22 A. That's correct. 23 Q. If, in fact, there was a true 24 dose-response relationship, you would expect</p>	<p>1 dirty, and it doesn't always work out quite 2 that cleanly. 3 BY MR. ZELLERS: 4 Q. All right. Do you -- well, let 5 me withdraw that. 6 Confounding. You considered 7 and talk about confounding as another one of 8 the Bradford Hill criteria; is that right? 9 MS. O'DELL: Object to the 10 form. 11 A. Confounding, by that you mean 12 specificity? 13 BY MR. ZELLERS: 14 Q. Well, I thought your -- I 15 thought you said in your methodology that you 16 applied the Bradford Hill criteria. 17 A. That's correct. 18 Q. Is confound -- strike that. 19 Is confounding an issue in 20 interpreting epidemiologic studies? 21 A. Yes. 22 Q. Do you agree that there is 23 confounding in these studies? 24 A. I'm sure there's confounding in</p>
Page 263	Page 265
<p>1 to see that dose-response relationship in 2 each of these groups; is that right? 3 MS. O'DELL: Object to the 4 form. 5 A. It's more like we see in the 6 group directly below that, where you start 7 out with an odds ratio which is not 8 significant but positive, and then reach a 9 significant odds ratio at one to five years 10 of daily use and a higher amount of 11 significance with five to 20 years of daily 12 use, and still a significant odds ratio, 13 which is about the same level, at greater 14 than 20 years of daily use. 15 BY MR. ZELLERS: 16 Q. Is that a yes to my question, 17 that if you do have a true dose-response 18 relationship, you would expect to see that 19 dose-response continue throughout each of the 20 periods? 21 MS. O'DELL: Object to the 22 form. 23 A. Well, it would be nice if you 24 did that, but epidemiologic data is very</p>	<p>1 these studies. 2 Q. You're familiar with that term, 3 right? 4 A. Yes. 5 Q. That's where the presence of 6 another association confuses the relationship 7 between the exposure and the disease being 8 studied; is that right? 9 A. That's correct. 10 Q. For example, if you're studying 11 the association between coffee and pancreatic 12 cancer, you need to be mindful of whether 13 cigarette smoking is more common in coffee 14 drinkers than the rest of the population, 15 fair? 16 A. Yes. 17 Q. Coffee -- or strike that. 18 Cigarette smoking could be a 19 confounder in that situation? 20 A. Possible. 21 Q. Because if more coffee drinkers 22 are smokers than non-coffee drinkers, an 23 association between coffee drinking and 24 pancreatic cancer might be due to the</p>

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 266</p> <p>1 smoking, not the coffee drinking; fair?</p> <p>2 A. That would be a good</p> <p>3 description of confounding.</p> <p>4 Q. Confounding can distort results</p> <p>5 in epidemiological studies; is that right?</p> <p>6 A. It can.</p> <p>7 Q. Do you agree that residual</p> <p>8 confounding is possible in every</p> <p>9 observational study?</p> <p>10 A. Yes, I think there's some form</p> <p>11 of confounding that's present in every</p> <p>12 observational study.</p> <p>13 Q. It's possible that unmeasured</p> <p>14 confounders may be present in every</p> <p>15 observational study; is that right?</p> <p>16 A. That's correct. Not just</p> <p>17 unmeasured confounders, but unrecognized</p> <p>18 confounders.</p> <p>19 Q. It's impossible to say that all</p> <p>20 known and unknown confounding factors have</p> <p>21 been controlled for in any given study; is</p> <p>22 that right?</p> <p>23 A. I also agree with that.</p> <p>24 Q. Many new factors possibly</p>	<p style="text-align: right;">Page 268</p> <p>1 not controlled for in any of the talc/ovarian</p> <p>2 cancer studies, were they?</p> <p>3 A. Not that I'm aware of.</p> <p>4 Q. Are you aware that studies that</p> <p>5 show a relationship between talc and ovarian</p> <p>6 cancer did not account for confounders?</p> <p>7 A. I think it's possible that many</p> <p>8 of those studies did not account for all</p> <p>9 potential confounders, but they made attempts</p> <p>10 to.</p> <p>11 Q. For example, Terry 2013, we</p> <p>12 talked about that earlier; is that right?</p> <p>13 A. Yes.</p> <p>14 Q. Terry 2013, that meta-analysis</p> <p>15 did not adjust for hormone replacement</p> <p>16 therapy usage, correct?</p> <p>17 A. Yes.</p> <p>18 Q. If hormone replacement therapy</p> <p>19 is a risk factor for ovarian cancer, then the</p> <p>20 Terry 2013 meta-analysis did not account for</p> <p>21 that potential confounding factor, correct?</p> <p>22 MS. O'DELL: Object to the</p> <p>23 form.</p> <p>24 A. Correct.</p>
<p style="text-align: right;">Page 267</p> <p>1 involved in ovarian cancer risk are just</p> <p>2 being published in the literature, correct?</p> <p>3 MS. O'DELL: Object to the</p> <p>4 form.</p> <p>5 A. I believe that is true.</p> <p>6 BY MR. ZELLERS:</p> <p>7 Q. For example, history of</p> <p>8 chlamydia infection, have you read about that</p> <p>9 possibly being involved in ovarian cancer</p> <p>10 risk?</p> <p>11 A. I haven't read that</p> <p>12 specifically. I was thinking more about the</p> <p>13 new information regarding genetic</p> <p>14 susceptibilities.</p> <p>15 Q. Also, weight gain during</p> <p>16 adolescence, is that another relatively new</p> <p>17 possible ovarian cancer risk factor?</p> <p>18 MS. O'DELL: Object to the</p> <p>19 form.</p> <p>20 A. It is, but obesity has been</p> <p>21 recognized as a cofactor for many years.</p> <p>22 BY MR. ZELLERS:</p> <p>23 Q. History of chlamydia infection,</p> <p>24 weight gain during adolescence, those were</p>	<p style="text-align: right;">Page 269</p> <p>1 BY MR. ZELLERS:</p> <p>2 Q. You cannot say whether the odds</p> <p>3 ratio of the Terry 2013 study would have been</p> <p>4 lower if the authors had adjusted for hormone</p> <p>5 replacement therapy usage, correct?</p> <p>6 A. I cannot say that. Yes.</p> <p>7 Q. Recall bias. You're familiar</p> <p>8 with recall bias?</p> <p>9 A. I am.</p> <p>10 Q. That is also a concern in every</p> <p>11 retrospective study, correct?</p> <p>12 A. Yes.</p> <p>13 Q. Recall bias can distort a</p> <p>14 scientific evaluation of whether an exposure</p> <p>15 is actually related to a disease; is that</p> <p>16 right?</p> <p>17 A. Yes, it can.</p> <p>18 Q. For example, recall bias could</p> <p>19 distort results if women with ovarian cancer</p> <p>20 were more likely to remember their exposure</p> <p>21 to talc than women without ovarian cancer; is</p> <p>22 that right?</p> <p>23 MS. O'DELL: Object to the</p> <p>24 form.</p>

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 270</p> <p>1 A. That's correct.</p> <p>2 BY MR. ZELLERS:</p> <p>3 Q. The effects of recall bias can</p> <p>4 be very real; is that right?</p> <p>5 MS. O'DELL: Object to the</p> <p>6 form.</p> <p>7 A. I'm not sure what you mean by</p> <p>8 very real.</p> <p>9 BY MR. ZELLERS:</p> <p>10 Q. Well, let's look at one of the</p> <p>11 studies that you cite. You cited the</p> <p>12 Schildkraut study in your report and you</p> <p>13 referred to it a bit earlier as supporting</p> <p>14 dose-response; is that right?</p> <p>15 A. Yes.</p> <p>16 Q. That's a study by Schildkraut</p> <p>17 and others titled Association Between Body</p> <p>18 Powder Use and Ovarian Cancer, the</p> <p>19 African-American Cancer Epidemiologic -- or</p> <p>20 Epidemiology Study.</p> <p>21 Is that right?</p> <p>22 A. Yes.</p> <p>23 Q. I've got it here for you.</p> <p>24 A. Okay.</p>	<p style="text-align: right;">Page 272</p> <p>1 publicity from lawsuits might influence the</p> <p>2 participants' recall of prior body powder</p> <p>3 use; is that right?</p> <p>4 A. This was a recent study, so</p> <p>5 that was more likely.</p> <p>6 Q. If you look on page 2,</p> <p>7 right-hand side, last paragraph that starts</p> <p>8 "Covariates include."</p> <p>9 Do you see that?</p> <p>10 A. Yes.</p> <p>11 Q. And I'm reading about</p> <p>12 two-thirds of the way down: Two class action</p> <p>13 lawsuits were filed in 2014 concerning</p> <p>14 possible carcinogenic effects of body powder</p> <p>15 which may have influenced recall of use;</p> <p>16 therefore, year of interview 2014 or later,</p> <p>17 yes/no, was concluded as a covariate in the</p> <p>18 logistic regression models.</p> <p>19 Is that correct?</p> <p>20 A. That's correct.</p> <p>21 Q. So go to page 4, Table 2. This</p> <p>22 is the adjusted odds ratio for the</p> <p>23 associations between mode, frequency and</p> <p>24 duration of body powder use in ovarian</p>
<p style="text-align: right;">Page 271</p> <p>1 (Carson Deposition Exhibit 24</p> <p>2 marked.)</p> <p>3 BY MR. ZELLERS:</p> <p>4 Q. Deposition Exhibit 24 is the</p> <p>5 Schildkraut study, 2016, correct?</p> <p>6 (Pause.)</p> <p>7 BY MR. ZELLERS:</p> <p>8 Q. Did you say correct?</p> <p>9 A. I think I did. I'm sorry.</p> <p>10 Q. That's all right. I may have</p> <p>11 missed it.</p> <p>12 Exhibit 24 is the Schildkraut</p> <p>13 2016 study; is that right?</p> <p>14 A. Yes.</p> <p>15 Q. This is one of the studies that</p> <p>16 you cite to and that you relied on in forming</p> <p>17 your opinions; is that right?</p> <p>18 A. Yes.</p> <p>19 Q. The study looked at, among</p> <p>20 other things, what impact, if any, lawsuit</p> <p>21 filings in 2014 had on whether women recalled</p> <p>22 using talc in the past, correct?</p> <p>23 A. I believe so.</p> <p>24 Q. The authors thought that the</p>	<p style="text-align: right;">Page 273</p> <p>1 cancer; is that right?</p> <p>2 A. Yes.</p> <p>3 Q. The second column shows the</p> <p>4 number of cases, and that would be women with</p> <p>5 ovarian cancer; is that right?</p> <p>6 A. That's correct.</p> <p>7 Q. The third column shows the</p> <p>8 controls; that's the women who do not have</p> <p>9 ovarian cancer, correct?</p> <p>10 A. Yes.</p> <p>11 Q. Looking at this data before</p> <p>12 2014, before the lawsuits, the percentage of</p> <p>13 controls, meaning women without ovarian</p> <p>14 cancer, said they used talc on their genitals</p> <p>15 was 34%; is that right?</p> <p>16 So those are women who were</p> <p>17 interviewed before 2014.</p> <p>18 A. Yes. Any genital use controls,</p> <p>19 34%.</p> <p>20 Q. And the controls, again, are</p> <p>21 women without ovarian cancer.</p> <p>22 A. That's correct.</p> <p>23 Q. The percentage of cases,</p> <p>24 meaning women with ovarian cancer, that were</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 274	Page 276
<p>1 interviewed before 2014 that said they used 2 talc on their genitals was 36.5%; is that 3 right? 4 A. That's correct. 5 Q. So roughly the same reporting 6 of genital talc use between women with and 7 without ovarian cancer occurred for those 8 women interviewed before the lawsuits were 9 filed; is that right? 10 A. That's correct. 11 Q. Then look at what happened 12 after the lawsuits were filed in 2014. For 13 women interviewed after 2014, the percent of 14 women without ovarian cancer that said they 15 used talc on their genitals was 34.4%; is 16 that right? 17 A. That's correct. 18 Q. So based on this data, the 19 lawsuits had essentially no effect on how 20 many of the women without ovarian cancer, the 21 controls, remembered or recalled using baby 22 powder; is that right? 23 A. Well, the percentage is the 24 same in both cases.</p>	<p>1 BY MR. ZELLERS: 2 Q. In this study, lawsuit filings 3 appears to have affected how many women with 4 ovarian cancer remembered using talc on their 5 genitals but basically had no effect on the 6 memory of women without ovarian cancer; is 7 that right? 8 MS. O'DELL: Object to the 9 form. 10 A. You can't say that this is -- 11 this demonstrates recall bias. It could. 12 BY MR. ZELLERS: 13 Q. These findings could be an 14 example of the potential effect of recall 15 bias; is that right? 16 MS. O'DELL: Object to the 17 form. 18 A. That is correct. 19 BY MR. ZELLERS: 20 Q. So pre-2014 there was an odds 21 ratio of 1.19 with the confidence interval 22 ranging from .87 to -- strike that -- 23 from .87 to 1.63, so there is not statistical 24 significance pre-2014; is that right?</p>
Page 275	Page 277
<p>1 Q. It went from 34% to 34.4%; is 2 that right? 3 A. That's correct. 4 Q. For women with ovarian cancer, 5 before the lawsuits were filed, 36.5% of them 6 said they recalled using baby powder; is that 7 right? 8 A. That's right. 9 Q. But after the lawsuits were 10 filed, the percent of women with ovarian 11 cancer who said they used baby powder went up 12 to 51.5%; is that right? 13 A. That is also correct. 14 Q. Is that a significant increase 15 from 36.5%? 16 A. I don't know, but it seems like 17 it might be. 18 Q. So after the lawsuits were 19 filed, the percent of women with ovarian 20 cancer who said they used baby powder jumped 21 significantly; is that right? 22 MS. O'DELL: Object to the 23 form. 24 A. Well, that's -- that is true.</p>	<p>1 A. Probably not. 2 Q. If the study had been 3 terminated as of 2014, prior to the lawsuits 4 being filed, then the results of the study 5 would have been that genital talc use was not 6 statistically significantly associated with 7 an increased risk of ovarian cancer; is that 8 right? 9 MS. O'DELL: Object to the 10 form. 11 A. Yes. 12 BY MR. ZELLERS: 13 Q. Did you make an attempt to 14 account for this potential recall bias in 15 weighing the Schildkraut study? 16 A. The authors did that for me by 17 including the period of the interview as a 18 cofactor in the logistic regression models. 19 It accounts for this difference that you see 20 on the table. 21 Q. You do agree there was no 22 statistically significant finding of an odds 23 ratio prior to 2014, the data collected 24 through that time; is that right?</p>

70 (Pages 274 to 277)

Arch I. "Chip" Carson, M.D., Ph.D.

Page 278	Page 280
<p>1 A. In the -- in the data collected 2 on those -- let me see here. In the data 3 collected on those 351 cases and 4 corresponding controls, there was not a 5 significant odds ratio. 6 Q. I want to go back and ask you a 7 few questions about some of the things I had 8 talked to you before about. 9 In terms of this chatter about 10 IARC, who has told you this? 11 A. There are a number of 12 environmental websites and -- that also 13 operate on social media that discuss this 14 kind of thing. 15 Q. So there's social media 16 websites that have talked about at least the 17 possibility of IARC revisiting the issue? 18 A. Yes, among many other things. 19 Q. I asked you earlier about 20 cornstarch, and you believe that cornstarch 21 is rapidly cleared from the body, including 22 the ovaries; is that right? 23 MS. O'DELL: Object to the 24 form.</p>	<p>1 factors -- or latency periods for a number of 2 different types of cancers and tumors based 3 on the incidence data and what is known about 4 the natural progression of those tumors over 5 time. 6 I can't recall at the moment 7 exactly where I determined the latency period 8 for ovarian cancer to be between 20 and 9 40 years. 10 We do have a paper that's 11 referenced here that discusses the 12 determination of latency periods and includes 13 ovarian cancer as one of the tumors that it 14 determines a latency period for, and it uses 15 a mathematical formula with various factors 16 plugged into it to calculate that. 17 In that particular article, the 18 latency factor -- period was very long. I 19 think it was 44 years on the average. 20 Q. You do not have personal 21 expertise in terms of the latency period for 22 ovarian cancer, correct? 23 A. I have -- I've calculated 24 latency periods as an exercise when I was in</p>
Page 279	Page 281
<p>1 A. Yes. 2 BY MR. ZELLERS: 3 Q. What is the mechanism by which 4 you believe that cornstarch is rapidly 5 cleared from the body, including the ovaries? 6 A. It's primarily composed of 7 carbohydrate with a small amount of 8 structural material, probably cellulose, and 9 those materials are broken down in body 10 fluids fairly rapidly and dissolved and 11 become part of the general milieu of the 12 body. 13 Q. Does cornstarch create 14 inflammation in the body? 15 A. Yes. 16 Q. You testified that the latency 17 period for ovarian cancer is between 20 and 18 40 years; is that right? 19 A. Roughly, yes. 20 Q. What is the basis for you 21 saying that? 22 A. There are a number of factors 23 that influence that, but there are 24 organizations that have determined latency</p>	<p>1 graduate school, but that's not something I 2 normally do. I usually defer to the -- those 3 who have published latency periods for that 4 information. 5 Q. You are recalling that at least 6 in some of the study or studies that you've 7 reviewed that the latency period for ovarian 8 cancer is 20 to 40 years, correct? 9 A. Yes. 10 Q. Are you able to tell us which 11 study or studies you're relying on for that 12 information? 13 A. I'd have to go through my list 14 to find it. Do you mind if I take a moment 15 to do that? 16 Q. Define "a moment." 17 A. Well, however long it takes me 18 to find it in that list, but -- 19 Q. Let me see if I can shortcut 20 it. 21 Do you believe that the latency 22 period for ovarian cancer is something you've 23 written out in one of your handwritten notes? 24 A. I don't believe so.</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 282	Page 284
<p>1 Q. It would be -- where would it 2 be? 3 MS. O'DELL: If you need a 4 moment to review either your report or 5 your materials list, you know -- 6 THE WITNESS: I don't believe 7 that particular piece of information 8 is in my report, but it's -- I think I 9 could come up with it fairly quickly 10 if I -- 11 BY MR. ZELLERS: 12 Q. All right. Go ahead. Find for 13 us the study or studies you're relying on for 14 the latency period of ovarian cancer. 15 A. Okay. If I'm lucky, I may hit 16 on it here. 17 (Document review.) 18 A. It's the Diana Nadler and Igor 19 Zurbenko paper Estimating Cancer Latency 20 Times Using the Weibull Model. 21 BY MR. ZELLERS: 22 Q. You're looking at Exhibit 4, 23 your literature list; is that right? 24 A. Yes.</p>	<p>1 MS. BOCKUS: If you want to 2 pass me your microphone, I think I can 3 stay here. I'm not going to pass him 4 that many exhibits. 5 MR. ZELLERS: I'm happy to help 6 you. 7 MS. BOCKUS: Thank you. 8 EXAMINATION 9 BY MS. BOCKUS: 10 Q. Dr. Carson, my name is Jane 11 Bockus. I'm not certain I actually 12 introduced myself to you this morning, but I 13 represent Imerys in this litigation. 14 Do you understand that? 15 A. I do. 16 Q. Before Mr. Abney contacted you 17 about preparing a report that would explain 18 the relationship between regular perineal use 19 of talc based on personal hygiene products 20 and subsequent development of ovarian cancer, 21 is that anything that you had researched 22 before that date? 23 MS. O'DELL: Object to the 24 form.</p>
Page 283	Page 285
<p>1 Q. What page of Exhibit 4 are you 2 looking at? 3 A. Page 17 in the Ns. 4 Q. Are you finished? 5 A. There may be others in the 6 list, but you asked me to cite one. You want 7 me to continue looking? 8 Q. No, I -- that is sufficient for 9 my purposes. Thank you. 10 Dr. Carson, there have been 11 some studies where talc particles had been 12 observed or reported in the ovaries of women 13 who have had perineal talc use; is that 14 right? 15 A. Yes. 16 Q. Heller was one of the studies 17 that we talked about, correct? 18 A. Correct. 19 Q. In those studies, there has not 20 been inflammation noted; is that right? 21 A. No, there -- that's not been an 22 important finding. 23 MR. ZELLERS: I have no further 24 questions for you.</p>	<p>1 A. I don't think Mr. Abney -- 2 well, he may have been that detailed in our 3 discussion. But in response to your 4 question, that's not a specific question I 5 had researched in the past, although I had 6 researched related kinds of issues. 7 BY MS. BOCKUS: 8 Q. So would it be fair to say that 9 the opinions contained in your report are all 10 opinions that you have come to as a result of 11 doing the research at the request of 12 Mr. Abney and others in the plaintiffs' 13 lawyer group? 14 MS. O'DELL: Object to the 15 form. 16 A. Yes. 17 BY MS. BOCKUS: 18 Q. Okay. And I'm going to 19 apologize right now. I'll be jumping around 20 because most of my outline has already been 21 covered, so let me just get you to look at 22 your report, if I could, and I'm going to ask 23 you some questions about it. 24 Turn to page 4, and</p>

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 286</p> <p>1 paragraph (b), the first sentence reads: 2 Numerous studies have examined the 3 cancer-causing characteristics of talc. 4 Do you see that? 5 A. Yes. 6 Q. And you identified Wilde as 7 your source for that statement, correct? 8 A. That is correct. 9 Q. Isn't it correct that the Wild 10 study actually exonerated talc as having 11 cancer-causing characteristics? 12 A. That was a conclusion of the 13 author, but the reason it's cited there is 14 because that's an example of the 15 investigation of the relationship. 16 Q. Okay. But in that study, 17 they -- he concluded that talc alone did not 18 cause cancer, correct? 19 A. As I recall, that was the 20 general conclusion, yes. 21 Q. Okay. Then in the next couple 22 of sentences, you say that talc has caused 23 cancer when implanted in various tissues and 24 under the skin in laboratory animals. It</p>	<p style="text-align: right;">Page 288</p> <p>1 A. No. 2 Q. And then going on, you talk 3 about the fact that there in that same 4 paragraph, if you go down, you talk about 5 IARC and the fact that IARC concluded that 6 talcum powder use by women for feminine 7 hygiene is a possible human carcinogen; 8 that's not a classification of talc as a 9 carcinogen, correct? 10 MS. O'DELL: Object to the 11 form. 12 A. It is within the spectrum of 13 carcinogens. 14 BY MS. BOCKUS: 15 Q. It's possible. 16 A. That's correct. 17 Q. And then you say that -- 18 meaning that there is insufficient evidence 19 of carcinogenesis in humans, but strong 20 evidence in other mammalian species. 21 Can you tell me where in IARC 22 it says that there is strong evidence that 23 talc causes ovarian cancer in other mammalian 24 species?</p>
<p style="text-align: right;">Page 287</p> <p>1 causes inflammation and fibrotic reaction, 2 including the chemotaxis of inflammatory 3 immune cells and accelerated growth and 4 division of cells in the involved tissue. 5 And you cite Okada 2007 for 6 that proposition; is that correct? 7 A. That's correct. 8 Q. But Okada wasn't even looking 9 at talc, was it? 10 A. Let me see here. Okada was 11 looking at inflammation as -- as the endpoint 12 in the various components of inflammation 13 which I talked about here, the chemotaxis of 14 inflammatory immune cells, accelerated growth 15 division in the involved tissues. 16 Q. But what you say is that talc 17 causes. When you say "it," you're referring 18 to talc, correct? It causes inflammation and 19 fibrotic reaction; isn't that what you're 20 saying in this sentence? 21 A. It is talc, yes. 22 Q. Okay. And yet, Okada, the 23 study that you cite for that proposition, 24 doesn't look at talc at all, does it?</p>	<p style="text-align: right;">Page 289</p> <p>1 A. I think the issue is not 2 specifically ovarian cancer; the issue is 3 cancer. And that's the point of view of 4 IARC, and that's what's alluded to here. 5 Q. So this is the one exhibit I'm 6 going to hand you, if I can get that one 7 marked by my assistant. 8 MR. ZELLERS: Exhibit 25. 9 (Carson Deposition Exhibit 25 10 marked.) 11 MS. O'DELL: This is a page out 12 of the monograph? 13 MS. BOCKUS: Yes. 14 MS. O'DELL: Are you going to 15 identify it? 16 MS. BOCKUS: And he can look it 17 up in his whole monograph. I just 18 pulled the page for simplicity. 19 MS. O'DELL: So feel free to do 20 that, Doctor. 21 MS. BOCKUS: Yes, page 412. 22 BY MS. BOCKUS: 23 Q. So looking at Exhibit 25, this 24 is a page from the IARC monograph where it</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 290	Page 292
<p>1 talks about the data -- the evidence that 2 they have and the evidence that they 3 reviewed. 4 Do you see that? 5 A. That's correct. 6 Q. And what they actually state 7 with regard to experimental evidence is that 8 there is limited evidence in experimental 9 animals for the carcinogenicity of talc not 10 containing asbestos or asbestiform fibers. 11 Correct? 12 MS. O'DELL: Object to the 13 form. 14 BY MS. BOCKUS: 15 Q. Did I read it incorrectly? 16 A. No, I just lost you for a 17 moment. 18 Q. It's one sentence. Go ahead 19 and take your time and read it. 20 A. Yes, I agree with that. They 21 found that inhaled talc, which does not 22 contain asbestos or asbestiform fibers, is 23 Group 3. 24 Q. That wasn't my question. I'm</p>	<p>1 black, titanium dioxide and talc. 2 So regarding talc, the overall 3 point of view here is whether or not it 4 produces cancer, not just ovarian cancer, not 5 just lung cancer, but any cancer. 6 And so I'm not sure that that 7 responds to your question. 8 BY MS. BOCKUS: 9 Q. No. My question was: You 10 state in your report that IARC found strong 11 evidence in animals, and I want to know where 12 you believe that statement occurs in the IARC 13 monograph, or do you know? 14 MS. O'DELL: And if you need a 15 minute to look, feel free to do that. 16 A. Well, I can say that it might 17 take me a while to look for it, but I can say 18 that that's the basic definition of Group 2B, 19 is limited evidence in humans and compelling 20 evidence in animals or other -- 21 BY MS. BOCKUS: 22 Q. Tell me where you're looking at 23 that definition of 2B. 24 A. Let me see here.</p>
Page 291	Page 293
<p>1 talking about experimental animals because 2 that's what -- you state in your report that 3 IARC found strong evidence in animals, and 4 yet the part of IARC that I know of where 5 they're addressing the animal data with 6 regard to talc is what I handed you in 7 Section 6.2, and it states there's limited 8 evidence, correct? 9 MS. O'DELL: Objection. 10 A. It states that there's limited 11 evidence -- I need to find this section in 12 the monograph. Just bear with me for a 13 moment. It's page 412? 14 (Document review.) 15 A. Okay. I seem to be missing 16 that part of the monograph. 17 MS. O'DELL: Do you have the 93 18 monograph? 19 THE WITNESS: Where's the -- 20 this is 100C, and this is 93. Okay. 21 Here it is. All right. Okay. 22 A. Okay. The entire monograph is 23 designed to evaluate carcinogenic risk, and 24 it looks at three different species, carbon</p>	<p>1 Q. We earlier marked the... 2 Exhibit 21, I think. 3 A. Well, I have this other 4 exhibit, which is the preamble from another 5 situation; it's Exhibit P-346, and... 6 Q. Well, let me just ask a 7 different question, rather than looking at 8 the preamble. 9 A. All right. 10 Q. Because that's kind of 11 overarching. 12 A. It is. 13 Q. To know what IARC found with 14 regard to talc and the evidence in animal 15 models, wouldn't it be more appropriate to 16 look at what they actually said about talc in 17 the animal studies? 18 A. Yes. 19 MS. O'DELL: Objection, form. 20 A. I would agree that that's the 21 case. 22 BY MS. BOCKUS: 23 Q. And to your knowledge, nowhere 24 did they find strong evidence of</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 294	Page 296
<p>1 cancer-causing potential of talc in animal 2 studies, correct? 3 MS. O'DELL: Objection to form. 4 A. Well -- well, it says on that 5 page there's limited evidence in experimental 6 animals, so I'll agree that at least in this 7 location it does not say strong evidence. 8 BY MS. BOCKUS: 9 Q. And without going through the 10 entire monograph, you don't know where that 11 language came from, is that fair, that you 12 used in your report? 13 MS. O'DELL: Object. Excuse 14 me. Object to the form. I think he 15 was pointing -- directing you to the 16 preamble and you withdrew your 17 question, but -- 18 MS. BOCKUS: Well, let me just 19 ask a qualifying question. 20 BY MS. BOCKUS: 21 Q. Does the preamble in any way 22 address their findings with regards to talc? 23 A. No, the preamble addresses the 24 methodology that's used by the IARC agency in</p>	<p>1 misstates the evidence. 2 A. I believe that was their 3 assumption. 4 BY MS. BOCKUS: 5 Q. Okay. The studies that you 6 reference in support of the notion that 7 asbestos in -- that may or may not exist in 8 body powder contributes to cause ovarian 9 cancer, none of the studies that you cite to 10 have referenced an application of a product 11 to the perineum of the women and girls study, 12 correct? 13 MS. O'DELL: Object to the 14 form. 15 THE WITNESS: I have a -- I 16 apologize greatly, but I lost the 17 track. Could you repeat that 18 question. 19 MS. BOCKUS: That's totally 20 understandable because it was a little 21 bit convoluted. 22 MS. O'DELL: Do you mind if we 23 get the realtime running again? We're 24 just off track here.</p>
Page 295	Page 297
<p>1 addressing all the substances that they 2 evaluate. 3 Q. Okay. 4 A. And that's usually where I pull 5 things like that. 6 MS. O'DELL: Are you finished, 7 Doctor? 8 THE WITNESS: Unless I'm going 9 to continue to search for this. 10 BY MS. BOCKUS: 11 Q. I don't need for you to look in 12 the preamble, because I'm really only 13 interested in their findings as to talc, not 14 their overarching methodology, that sort of 15 thing. 16 A. Okay. But it's important to 17 point out that this particular monograph is 18 an evaluation of the carcinogenicity of talc 19 that does not contain asbestos or asbestiform 20 fibers, so -- 21 Q. Correct. Which was, from their 22 view, the talc that was included in all of 23 the studies that they reviewed, correct? 24 MS. O'DELL: Objection,</p>	<p>1 MS. BOCKUS: That's okay. 2 BY MS. BOCKUS: 3 Q. I'm looking on page 5. Do you 4 see on page 5 of your report, sir, 5 paragraph (c)? 6 A. Yes. 7 Q. And there you cite one, two, 8 three, four, five, six, seven, eight, nine, 9 10, 11, 12 studies, correct? 10 A. Yes. 11 Q. Do you speak Italian? 12 A. I can read it pretty well. 13 Q. Is that what you did for the 14 Bertolotti study? 15 A. The Bertolotti study. Yes, I 16 read most of it. I may have kibitzed with 17 some of my colleagues about the meaning of a 18 few words. 19 Q. At any rate, all of these 20 studies have to do with heavy occupational 21 exposure to asbestos, correct? 22 MS. O'DELL: Object to the 23 form. 24 A. Yes.</p>

75 (Pages 294 to 297)

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 298</p> <p>1 BY MS. BOCKUS: 2 Q. And you don't have any 3 information how the dose of asbestos to which 4 these women were exposed during their heavy 5 occupational exposure compares to any 6 exposure to asbestos from the use of body 7 powder, correct? 8 A. Well, I think these were not 9 all occupational exposures, but I do not have 10 information regarding things like the route 11 of exposure, no. 12 Q. Do you have any information 13 regarding the dose? 14 A. No, I don't. 15 Q. Do you have any information 16 that would compare the dose of asbestos to 17 which the women in these studies were 18 exposed -- 19 A. Well, in some of the studies -- 20 Q. Wait, I haven't finished my 21 question. 22 A. Sorry. 23 Q. -- to any alleged dose of 24 asbestos in body powder?</p>	<p style="text-align: right;">Page 300</p> <p>1 microenvironment, and based on what we know 2 about the mechanism of action of talc as well 3 and even asbestos, they're all similar, and 4 for that reason would be expected to be 5 additive. 6 Q. But the study hasn't been done 7 even in a petri dish, has it? 8 MS. O'DELL: Object to the 9 form. 10 A. I don't know if there's 11 something in progress or not, but that's the 12 kind of study that is currently being looked 13 at. Combined exposures is the -- sort of the 14 hallmark of research these days in 15 toxicology. 16 BY MS. BOCKUS: 17 Q. Do you know of anyone who's 18 looking at that question? 19 A. I don't. 20 Q. Okay. Have any of the heavy 21 metals that you have identified been 22 identified as carcinogenic to the ovary by 23 IARC? 24 A. No.</p>
<p style="text-align: right;">Page 299</p> <p>1 Can you make any comparison 2 whatsoever to the amount of asbestos to which 3 these women were exposed to any exposure by 4 any woman who has used a Johnson & Johnson 5 body powder? 6 MS. O'DELL: Object to the 7 form. 8 A. I don't think I'm able to make 9 that kind of comparison. 10 BY MS. BOCKUS: 11 Q. Okay. There are ways to study 12 whether two toxins combined increase a risk 13 more than exposure to a single toxin, whether 14 it -- whether one offsets the risk of one of 15 the toxins or whether you add them together, 16 even multiply them together, right? 17 A. Yes. 18 Q. Has any such study ever been 19 done with regard to talc and the heavy metals 20 that you identify in your report? 21 A. Not specifically a study to 22 look at the combined contribution, but we 23 know a lot about the mechanism of action of 24 the metals in particular in the</p>	<p style="text-align: right;">Page 301</p> <p>1 Q. I want you to turn to page 7 2 now, if you would, please, on other evidence. 3 And you've talked about this paragraph a fair 4 amount already, and I don't want to repeat 5 any of the prior questions. 6 But I want to ask you about the 7 statement in that first sentence, where you 8 say that transport of talc-containing 9 materials from the perineum to the upper 10 reproductive tract and body cavities has been 11 shown to occur with startling regularity. 12 And I want to stop right there. 13 If I recall your testimony 14 correctly, none of these studies even look at 15 the transport of talc-containing materials 16 from the perineum to the upper reproductive 17 tract; isn't that correct? 18 MS. O'DELL: Object to the 19 form. 20 A. Well, it is true that most of 21 the research that's been done in this area 22 has been done on materials that have been 23 instilled into the vagina or the posterior 24 fornix, but I think and it's my opinion that</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 302	Page 304
<p>1 application to the perineum is equivalent to</p> <p>2 that.</p> <p>3 Q. Do you have an opinion as to</p> <p>4 what percentage of the talcum powder applied</p> <p>5 in a daily dusting to the perineum makes its</p> <p>6 way to the vagina?</p> <p>7 A. No, I don't know.</p> <p>8 Q. Do you have an opinion as to</p> <p>9 what percentage of the talc that, in your</p> <p>10 opinion, would make its way to the vagina</p> <p>11 would actually make its way to the cervix?</p> <p>12 A. I don't know that either.</p> <p>13 Q. And out of the talc that makes</p> <p>14 its way to the cervix, what percentage makes</p> <p>15 it past the cervix into the uterus?</p> <p>16 A. That, I don't know either.</p> <p>17 Q. Do you have any reason to</p> <p>18 believe that talc would migrate with more</p> <p>19 frequency or rapidity than sperm?</p> <p>20 MS. O'DELL: Objection to form.</p> <p>21 A. No, I don't have reason to</p> <p>22 believe that would be the case.</p> <p>23 BY MS. BOCKUS:</p> <p>24 Q. Would you agree, in fact, that</p>	<p>1 those studies that you list here done in</p> <p>2 women who were standing up?</p> <p>3 A. The studies that I list in</p> <p>4 other evidence?</p> <p>5 Q. Yes.</p> <p>6 A. I think not.</p> <p>7 Q. In fact, were any of them done</p> <p>8 in women who were inclined with their head</p> <p>9 elevated over their hips?</p> <p>10 A. No.</p> <p>11 Q. So my question is: Where do</p> <p>12 you get the term "startling regularity" with</p> <p>13 regard to the transport of talc from outside</p> <p>14 a woman's body to the upper reproductive</p> <p>15 tract?</p> <p>16 MS. O'DELL: Object to the</p> <p>17 form.</p> <p>18 A. The propensity of evidence of</p> <p>19 rapid transport of particulate material</p> <p>20 regarding -- regardless of its composition.</p> <p>21 BY MS. BOCKUS:</p> <p>22 Q. Particulate material inserted</p> <p>23 well into a woman's vagina whose hips are</p> <p>24 above her head, correct?</p>
Page 303	Page 305
<p>1 it is unlikely that talc, an inert particle,</p> <p>2 would travel as quickly or in the same</p> <p>3 percentages as sperm through the reproductive</p> <p>4 tract?</p> <p>5 MS. O'DELL: Object to the</p> <p>6 form.</p> <p>7 A. I think the transport time is</p> <p>8 roughly the same for any particulate matter,</p> <p>9 including sperm.</p> <p>10 BY MS. BOCKUS:</p> <p>11 Q. Do you have any studies to</p> <p>12 support that opinion?</p> <p>13 A. Well, we know -- we know the --</p> <p>14 we know the velocity of motile sperm; it's</p> <p>15 very slow. And we have studies that have</p> <p>16 shown the progression of particles through</p> <p>17 the fallopian tubes at at least that fast a</p> <p>18 rate, possibly faster.</p> <p>19 And so the motility of sperm is</p> <p>20 slower than the rate at which it passes</p> <p>21 through the female reproductive system, so</p> <p>22 there are obviously other mechanisms at play</p> <p>23 other than sperm motility.</p> <p>24 Q. To your knowledge, were any of</p>	<p>1 MS. O'DELL: Objection to form.</p> <p>2 A. Well, we have other studies</p> <p>3 too. We have the powdered glove examination</p> <p>4 studies, things of that nature, that are a</p> <p>5 little bit different.</p> <p>6 BY MS. BOCKUS:</p> <p>7 Q. And you believe they support</p> <p>8 your conclusion that talc is transported from</p> <p>9 the perineum to the upper reproductive tract</p> <p>10 with startling regularity?</p> <p>11 A. I think that's a valid</p> <p>12 conclusion supported by the evidence, yes.</p> <p>13 Q. I'm turning to page 8 now, and</p> <p>14 the number that you have here -- and you've</p> <p>15 repeated it a couple of times today -- about</p> <p>16 your opinion that the elimination of talc as</p> <p>17 a risk could result in over 3,000 lives saved</p> <p>18 in the U.S. each year.</p> <p>19 How did you come to that</p> <p>20 conclusion?</p> <p>21 A. Well, I'm referring to talcum</p> <p>22 powder here --</p> <p>23 Q. Okay. Sure.</p> <p>24 A. -- which is the complete</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 306	Page 308
<p>1 product.</p> <p>2 I came to that conclusion based</p> <p>3 on the number of new cases of ovarian cancer</p> <p>4 that are diagnosed in the United States each</p> <p>5 year and the number of ovarian cancer deaths</p> <p>6 that occur each year.</p> <p>7 And essentially, of 21,000 or</p> <p>8 so cases of -- new cases of ovarian cancer,</p> <p>9 there are corresponding 14,000 or more deaths</p> <p>10 each year, so that's a two-thirds fatality</p> <p>11 rate if you look over time.</p> <p>12 The -- at 30% increase in the</p> <p>13 risk of -- or a 30% increase in the risk of</p> <p>14 cancer applied in reverse, that is reducing</p> <p>15 those -- that 30% increased risk from the use</p> <p>16 of perineal application of talcum powder</p> <p>17 could result in the prevention of as many as</p> <p>18 3,000 lives, depending on the prevalence of</p> <p>19 use.</p> <p>20 Q. Would that calculation require</p> <p>21 that 100% of the women in the U.S. be using</p> <p>22 talcum powder on a daily basis?</p> <p>23 A. It would require a hundred</p> <p>24 percent of the women in the U.S. to stop</p>	<p>1 A. There may not have been use of</p> <p>2 talcum powder in all those women, that's</p> <p>3 correct.</p> <p>4 Q. Do you have any notion as to</p> <p>5 what percent of those women may have used</p> <p>6 talcum powder?</p> <p>7 A. Based on these various studies,</p> <p>8 it seems to vary between 30 and 60%. It's</p> <p>9 more so in the U.S., Australia and the U.K.</p> <p>10 Q. Do you have an opinion as to</p> <p>11 how regularly a women needs to use talcum</p> <p>12 powder before her risk of ovarian cancer is</p> <p>13 increased by 30%?</p> <p>14 A. Well, based on the epidemiology</p> <p>15 studies, that risk occurs in the population</p> <p>16 in general from ever use as opposed to never</p> <p>17 use, and so it would depend on the individual</p> <p>18 woman.</p> <p>19 Each person has an individual</p> <p>20 susceptibility and individual characteristics</p> <p>21 and would probably have an individual use</p> <p>22 pattern. So I couldn't say for any</p> <p>23 individual woman.</p> <p>24 Q. And that's not what I'm asking</p>
Page 307	Page 309
<p>1 using talcum powder on a daily basis.</p> <p>2 Q. That wasn't my question.</p> <p>3 In order to attribute --</p> <p>4 A. Well, my answer to your</p> <p>5 question then is no.</p> <p>6 Q. In order to attribute 30% of</p> <p>7 all ovarian cancer deaths to the use of</p> <p>8 talcum powder -- let me back up.</p> <p>9 The data that you have that</p> <p>10 you've cited is talking about the percentage</p> <p>11 of women -- the percentage of women who use</p> <p>12 talcum powder who are diagnosed with ovarian</p> <p>13 cancer, correct?</p> <p>14 MS. O'DELL: Object to the</p> <p>15 form.</p> <p>16 A. It is the total number of new</p> <p>17 diagnoses per year.</p> <p>18 BY MS. BOCKUS:</p> <p>19 Q. Okay.</p> <p>20 A. I think last year was</p> <p>21 22,000-something.</p> <p>22 Q. But that number, 22,000, 100%</p> <p>23 of those women did not use talcum powder,</p> <p>24 correct?</p>	<p>1 for. I'm really asking for in general,</p> <p>2 because that's what epidemiology is, correct?</p> <p>3 It's not talking about an individual woman,</p> <p>4 right?</p> <p>5 A. That's correct, it's describing</p> <p>6 it in the population.</p> <p>7 Q. So in the population, in the</p> <p>8 studies that you've reviewed, what is the</p> <p>9 minimum number of days per month, or however</p> <p>10 you want to describe it, that a woman would</p> <p>11 need to use talcum powder before she would be</p> <p>12 included in the group that you believe have a</p> <p>13 30% increased risk of ovarian cancer?</p> <p>14 MS. O'DELL: Object to the</p> <p>15 form.</p> <p>16 A. The only qualifier that I've</p> <p>17 been able to come up with and that I've used</p> <p>18 in this report is the regular use of talcum</p> <p>19 powder.</p> <p>20 BY MS. BOCKUS:</p> <p>21 Q. Okay.</p> <p>22 A. And that is going to vary over</p> <p>23 a broad range. It would be periodically</p> <p>24 daily to several times a week would be</p>

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 310</p> <p>1 regular use. 2 Q. And over how many years must a 3 woman use talcum powder on a regular basis 4 before her risk of ovarian cancer is 5 increased to 30% -- 6 MS. O'DELL: Object to the 7 form. 8 BY MS. BOCKUS: 9 Q. -- in your opinion? 10 MS. BOCKUS: Sorry. 11 A. Some of the studies have 12 focused on usage periods as short as one 13 year, but most have studied longer periods of 14 use and separated use into things like 15 decades or accumulated total person-years 16 based on reports of the women, multiplying 17 frequency by time. 18 So again, it would depend on 19 the individual, but the research reports 20 hover around five to ten years of regular 21 use, resulting in significant odds ratios. 22 BY MS. BOCKUS: 23 Q. As I understand it in 24 toxicology, one of the basic tenets is that</p>	<p style="text-align: right;">Page 312</p> <p>1 no threshold of exposure for risk; that we 2 are -- we are right to use a zero threshold 3 approach until we know more about the 4 possibility of a threshold below which 5 exposure would be safe. At the current time 6 we don't have that information. 7 Q. Do you believe that there 8 probably is a threshold below which use is 9 safe? 10 A. In the carcinogenic process, 11 which we haven't really talked about in this 12 session today, there is an insult to a cell 13 which affects the genetic material, the DNA. 14 And there are built-in repair mechanisms that 15 the cell has for fixing that problem that 16 occurred, a mutation, for example. 17 These kinds of insults are 18 happening to cells all the time, not just 19 from carcinogens in our environment, but just 20 from natural occurrences, even endogenous 21 biochemical reactions cause these problems. 22 The question is: Is the repair 23 process sufficient to undo what's been done? 24 And an exposure to environmental carcinogens,</p>
<p style="text-align: right;">Page 311</p> <p>1 it's the dose that makes the poison, correct? 2 A. That's correct. 3 Q. That water can kill you if you 4 drink too much of it, right? 5 A. Theoretically. 6 Q. In a short period of time. 7 And so I'm trying to find out 8 what you have determined is the threshold of 9 risk is -- for talcum powder use by women. 10 Do you have an opinion as to at what point a 11 threshold has been reached where the use of 12 talcum powder by women in their perineal 13 region increases their risk? 14 A. I think any use of carcinogenic 15 materials or any exposure to carcinogenic 16 materials increases the risk somewhat. A 17 greater exposure, based on the 18 "dose makes the poison" principle, would 19 result in a greater risk. 20 And we know from toxicologic 21 studies that intense exposures can sometimes 22 accelerate the process and even shorten the 23 latency period of a carcinogenic event. 24 So my opinion is that there is</p>	<p style="text-align: right;">Page 313</p> <p>1 that repair process is often overwhelmed so 2 that it cannot catch up with the damage 3 that's being created, and a tumor is born, 4 basically. 5 That is where the concept of 6 threshold comes from. Have we overwhelmed 7 the repair or not, and we don't have enough 8 research evidence or scientific evidence to 9 be able to define that line at this point. 10 Q. Has there ever been a study 11 that showed that talcum powder caused DNA 12 damage in normal ovarian epithelial tissue? 13 A. Well, we do have the studies 14 that have recently been produced by Fletcher 15 and Saed that show the inflammatory process 16 is influenced by talc, and this is nonfibrous 17 talc, that result in mutagenic events that 18 are available for promotion, and there are 19 biomarkers that have also been established 20 for that. 21 Q. The studies by Saed did not 22 demonstrate DNA mutation, did they? 23 MS. O'DELL: Object to the 24 form.</p>

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 314</p> <p>1 A. I think they actually did.</p> <p>2 BY MS. BOCKUS:</p> <p>3 Q. That's your reading of them?</p> <p>4 A. Yes.</p> <p>5 Q. What Saed did is he placed talc</p> <p>6 on cultured ovarian cancer cells, correct?</p> <p>7 A. Yes.</p> <p>8 Q. And that actually -- what he</p> <p>9 recorded was an elevation in the CA-125?</p> <p>10 A. That's one of the things he</p> <p>11 did. He also measured -- he did a number of</p> <p>12 genetic studies. He did transcribed RNA. He</p> <p>13 located individual SNPs, which are single</p> <p>14 nucleotide polymorphisms, in the genetic</p> <p>15 material.</p> <p>16 And he found that as a result</p> <p>17 of that treatment, those mutations altered</p> <p>18 the effectiveness of antioxidant enzymes that</p> <p>19 are part of the protection mechanism and</p> <p>20 shield the repair process of the cell from</p> <p>21 further damage.</p> <p>22 Q. Let's go back to the CA-125.</p> <p>23 MS. O'DELL: If you need to</p> <p>24 pull the paper out, Doctor, just, if</p>	<p style="text-align: right;">Page 316</p> <p>1 THE WITNESS: I'm sorry, it</p> <p>2 appears that I do need to get the</p> <p>3 original paper here. There it is.</p> <p>4 Okay. Thank you.</p> <p>5 (Document review.)</p> <p>6 BY MS. BOCKUS:</p> <p>7 Q. Can you answer the question:</p> <p>8 Did Saed have any either positive or negative</p> <p>9 controls that he used in his experiments?</p> <p>10 MS. O'DELL: Object to the</p> <p>11 form.</p> <p>12 A. I think he did, but I'd like to</p> <p>13 actually find it in here so I can give you</p> <p>14 the specifics.</p> <p>15 Well, he used normal cells and</p> <p>16 epithelial ovarian cancer cells, and one was</p> <p>17 the control for the other. He treated them</p> <p>18 in the same way.</p> <p>19 BY MS. BOCKUS:</p> <p>20 Q. Let me ask a different</p> <p>21 question.</p> <p>22 What I'm asking is: Did he</p> <p>23 use, say, glass beads to see if -- as a</p> <p>24 control to the talc? Did he have anything</p>
<p style="text-align: right;">Page 315</p> <p>1 you want to take a moment and do that.</p> <p>2 I know you were searching for it while</p> <p>3 you were talking.</p> <p>4 THE WITNESS: Yes, I think I</p> <p>5 have it right here.</p> <p>6 MS. BOCKUS: These are just</p> <p>7 general questions that I'm going to</p> <p>8 ask you.</p> <p>9 MS. O'DELL: You still may get</p> <p>10 the paper out.</p> <p>11 MS. BOCKUS: Do whatever you</p> <p>12 want to do.</p> <p>13 THE WITNESS: You can go ahead.</p> <p>14 I'm...</p> <p>15 BY MS. BOCKUS:</p> <p>16 Q. What controls did Saed use?</p> <p>17 Did he use any controls? In other words, did</p> <p>18 he place a known foreign object that was</p> <p>19 not -- that was known not to be a carcinogen</p> <p>20 on the cultured ovarian cells to see if there</p> <p>21 was a difference?</p> <p>22 MS. O'DELL: Can you just pause</p> <p>23 just for a minute, let the doctor pull</p> <p>24 out the exhibit?</p>	<p style="text-align: right;">Page 317</p> <p>1 that he was controlling the cells' reaction</p> <p>2 to against the talc?</p> <p>3 A. I don't believe so.</p> <p>4 Q. That would be important in an</p> <p>5 experiment of this nature, would you not</p> <p>6 agree with that?</p> <p>7 MS. O'DELL: Object to the</p> <p>8 form.</p> <p>9 A. Well, he did utilize normal and</p> <p>10 cancerous cells, which would theoretically</p> <p>11 act as a control in that experiment.</p> <p>12 BY MS. BOCKUS:</p> <p>13 Q. That's not my question. I'm</p> <p>14 really asking about another element that he</p> <p>15 is exposing the cells to, both the normal and</p> <p>16 the cancerous cells.</p> <p>17 MS. O'DELL: Objection to form.</p> <p>18 BY MS. BOCKUS:</p> <p>19 Q. To see if the reaction was just</p> <p>20 a reaction to a foreign body versus talc</p> <p>21 specifically.</p> <p>22 Did he do that?</p> <p>23 MS. O'DELL: Object to the</p> <p>24 form.</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 318	Page 320
<p>1 A. I don't believe that he 2 provided a control exposure as part of this 3 experiment. 4 BY MS. BOCKUS: 5 Q. And you would agree that there 6 are many things that will increase a CA-125, 7 correct? 8 MS. O'DELL: Object to the 9 form. 10 A. Yes, it's an acute-phase 11 reactant. 12 BY MS. BOCKUS: 13 Q. Pregnancy can increase 14 somebody's CA-125? 15 A. That's correct. 16 Q. And with regard to the SNPs, 17 that is not the same thing as a test showing 18 mutation, correct? 19 MS. O'DELL: Object to the 20 form. 21 BY MS. BOCKUS: 22 Q. It's a surrogate. 23 A. Well, it's because there was 24 transcribed RNA that was used to determine</p>	<p>1 A. I don't specifically know. 2 BY MS. BOCKUS: 3 Q. There's no way to know that, is 4 there? 5 A. No, there's not. 6 Q. Let me find my -- there we go. 7 The Saed paper that you were 8 looking at just a minute ago, it has 9 something printed across it. What does that 10 say? 11 A. In blue here? 12 Q. Uh-huh. 13 A. "For Peer Review." 14 Q. Okay. So it hasn't yet been 15 peer reviewed; is that correct? 16 MS. O'DELL: Object to the 17 form. 18 A. It's been submitted. 19 BY MS. BOCKUS: 20 Q. So does that mean it has not 21 yet been peer reviewed? 22 MS. O'DELL: Object to the 23 form. 24 A. I think it's been accepted for</p>
Page 319	Page 321
<p>1 their presence, and the -- it's just part of 2 their procedure, but it identifies genetic 3 alterations. And those genetic alterations 4 transformed into differential enzyme 5 activities. 6 Q. Do you know whether there are 7 standard tests for genotoxicity and 8 mutagenicity? 9 A. There are lots of standard 10 tests, yes. 11 Q. And Saed didn't use any of 12 those, did he? 13 MS. O'DELL: Object to the 14 form. 15 A. Well, he went directly to cells 16 in culture to see what happened when they 17 were treated with talc. 18 BY MS. BOCKUS: 19 Q. Does the amount of talc that 20 Saed used compare in any way to the amount of 21 talc that may reach a woman's ovary from 22 perineal application? 23 MS. O'DELL: Object to the 24 form.</p>	<p>1 publication. 2 BY MS. BOCKUS: 3 Q. But the copy you have says on 4 it "For Peer Review," correct? 5 A. That's correct. 6 Q. In the paragraph that we were 7 looking at earlier, where you were talking 8 about the startling regularity, later on in 9 the paragraph you state that there 10 is clearly -- sufficient particulate 11 materials applied routinely to the perineum 12 have ready access and in sufficient 13 quantities to produce biologic responses in 14 internal tissues. 15 What internal tissues have you 16 seen any study recording a biologic response 17 to talc from? 18 That was such a bad question, 19 I'm going to ask it again. 20 What internal tissues are you 21 referring to there? 22 A. Well, it says including -- 23 including ovaries and surrounding structures. 24 By surrounding structures, I'm referring to</p>

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 322</p> <p>1 the fallopian fimbriae and the epithelium of</p> <p>2 the cavity.</p> <p>3 Q. So -- and I know we've been</p> <p>4 through this already, but to your knowledge,</p> <p>5 there are no studies reporting biologic</p> <p>6 responses to talc in the vagina, correct?</p> <p>7 A. Not that I'm aware.</p> <p>8 Q. You're not aware of any studies</p> <p>9 reporting biologic responses to talc in the</p> <p>10 cervix, correct?</p> <p>11 A. Correct.</p> <p>12 Q. Are you aware of any studies</p> <p>13 reporting biologic response to the uterus?</p> <p>14 A. No.</p> <p>15 Q. Are you aware of any studies</p> <p>16 reporting a biologic response in the</p> <p>17 fallopian tubes?</p> <p>18 MS. O'DELL: Object to the</p> <p>19 form.</p> <p>20 A. Well, I don't -- I'm not aware</p> <p>21 of studies that draws a direct correlation</p> <p>22 between exposure to talc and reaction in the</p> <p>23 fallopian tubes.</p> <p>24 ///</p>	<p style="text-align: right;">Page 324</p> <p>1 fallopian tube goes into that fluid and just</p> <p>2 gets moved around all the time; is that</p> <p>3 correct?</p> <p>4 MS. O'DELL: Objection. Excuse</p> <p>5 me. Objection, form.</p> <p>6 A. Well, there's a fairly direct</p> <p>7 presentation of the ovary, so there's not a</p> <p>8 large space there, but there is a space. And</p> <p>9 whatever goes into that space remains there.</p> <p>10 Some of it may come back out.</p> <p>11 BY MS. BOCKUS:</p> <p>12 Q. Does the fallopian tube move</p> <p>13 around during the month?</p> <p>14 MS. O'DELL: Object to the</p> <p>15 form.</p> <p>16 A. I don't know.</p> <p>17 MS. BOCKUS: I'm almost</p> <p>18 finished. I'm going through all the</p> <p>19 things that I've crossed off.</p> <p>20 BY MS. BOCKUS:</p> <p>21 Q. So I understand you correctly,</p> <p>22 you have not identified a nonthreshold dose</p> <p>23 of talc; is that correct?</p> <p>24 MS. O'DELL: Object to the</p>
<p style="text-align: right;">Page 323</p> <p>1 BY MS. BOCKUS:</p> <p>2 Q. Okay. Is the ovary attached to</p> <p>3 the fallopian tube?</p> <p>4 A. It is -- it's in the proximity.</p> <p>5 It's not directly attached.</p> <p>6 Q. And what surrounds the ovary?</p> <p>7 A. There's a structure that -- the</p> <p>8 ovary itself?</p> <p>9 Q. Yes.</p> <p>10 A. There's an epithelial membrane</p> <p>11 around the ovary, and --</p> <p>12 Q. And then what touches the</p> <p>13 epithelial membrane?</p> <p>14 A. Well, the fimbriae of the</p> <p>15 fallopian tubes surround that and the rest of</p> <p>16 it is just sort of space.</p> <p>17 Q. Space. Is the space filled</p> <p>18 with fluid?</p> <p>19 A. It is.</p> <p>20 Q. And is that fluid kind of</p> <p>21 moving around?</p> <p>22 A. All the time.</p> <p>23 Q. All the time.</p> <p>24 So things that come through the</p>	<p style="text-align: right;">Page 325</p> <p>1 form.</p> <p>2 A. You mean a dose that is below a</p> <p>3 safe threshold?</p> <p>4 BY MS. BOCKUS:</p> <p>5 Q. Correct.</p> <p>6 A. No, I have not.</p> <p>7 Q. Did you make any attempt to</p> <p>8 extrapolate a de minimis risk level?</p> <p>9 MS. O'DELL: Object to the</p> <p>10 form.</p> <p>11 A. I did not. It would be nice to</p> <p>12 be able to do that, considering that most of</p> <p>13 us have had talcum powder exposures of one</p> <p>14 sort or another during our lives. And it's</p> <p>15 something that seems to have been felt to be</p> <p>16 very useful.</p> <p>17 So it would be nice to be able</p> <p>18 to do that exercise, but I haven't -- I have</p> <p>19 not been prevented -- presented with the</p> <p>20 information to approach that, nor am I aware</p> <p>21 of anyone else who's been able to do it.</p> <p>22 BY MS. BOCKUS:</p> <p>23 Q. What information would you need</p> <p>24 that you don't have?</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 326	Page 328
<p>1 A. Well, we'd need -- we'd need 2 dose information, first of all, which we 3 don't have, to combine with the epidemiologic 4 results. 5 We need to define the 6 mechanistic issues better than they are 7 currently, and at that point I think we would 8 be able to make some strong conclusions 9 regarding potential thresholds of hazardous 10 doses. 11 Q. You would agree that the great 12 majority of women who use talcum powder on a 13 regular basis are never diagnosed with 14 ovarian cancer, correct? 15 A. I think that's true. 16 Q. And it's also true that the 17 majority of women diagnosed with ovarian 18 cancer have never used talcum powder on a 19 regular basis, correct? 20 MS. O'DELL: Object to the 21 form. 22 A. I think it's a majority, but 23 there's a significant number who have. 24 ///</p>	<p>1 you? In other words, are they referred by 2 other people? 3 A. I have primarily a referral 4 practice in toxicology. 5 Q. In toxicology? And so what 6 types of patients are referred to you? 7 A. I have patients who are either 8 workplace-related patients who have had 9 chemical or other substance exposures. I 10 also have a number of environmental exposure 11 patients that I see. 12 And I also have a number of -- 13 I also see a number of patients for general 14 routine surveillance activities or required 15 exams by regulation, either for licensure or 16 certification. 17 Q. Are you sent patients where the 18 patient is trying to figure out why they got 19 some disease? 20 A. Sometimes. Usually the patient 21 comes and tells me why they got the disease, 22 and I go -- I talk to them about the 23 possibilities, and we look at ways of 24 confirming that or refuting it, or in many</p>
Page 327	Page 329
<p>1 BY MS. BOCKUS: 2 Q. But the majority have not, 3 correct? 4 A. I would say more than 50% have 5 not. 6 Q. And would you agree that -- let 7 me back up. 8 When is the last time you 9 conducted a pelvic exam? 10 A. I haven't done one in a couple 11 of years. 12 Q. Under what circumstances did 13 you do it two years ago? 14 A. I see patients regularly, and 15 in some cases, pelvic exams are either 16 requested or indicated by the issue. 17 Q. It's not something you do on a 18 regular basis, correct? 19 A. It's not. 20 Q. And you do not -- what 21 percentage of your patients are women? 22 A. Probably half, maybe a little 23 less than half. 24 Q. How do patients come to see</p>	<p>1 cases, altering to a correct path of 2 diagnostic investigation. 3 Q. So sometimes a patient comes to 4 you and says: I was exposed to this chemical 5 and that's why I can't breathe? 6 A. Yes. 7 Q. And you do an investigation, 8 and sometimes you say: You know what, that 9 chemical has nothing to do with why you can't 10 breathe? 11 A. Sometimes that's the case. 12 MS. O'DELL: Are you finished, 13 sir? Are you finished? 14 A. Well, I just wanted to add -- 15 BY MS. BOCKUS: 16 Q. Sure. 17 A. -- that although many times it 18 is the case, and often the patient does 19 understand that connection quite well, 20 usually from a very closely connected cause 21 and effect kind of relationship. It's when 22 things are stretched out much more in time, 23 and there is a likely suspect that may be an 24 innocent bystander, that they may get</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 330	Page 332
<p>1 confused.</p> <p>2 Q. Have you ever been referred a</p> <p>3 patient to determine why they have ovarian</p> <p>4 cancer?</p> <p>5 A. No.</p> <p>6 Q. Do you know of any methodology</p> <p>7 accepted in the medical community for</p> <p>8 determining why an individual woman has</p> <p>9 developed ovarian cancer?</p> <p>10 MS. O'DELL: Object to the</p> <p>11 form.</p> <p>12 A. Other than genetic testing that</p> <p>13 identifies specific risks and history taking</p> <p>14 that might identify other known risk factors</p> <p>15 for that woman, there is -- I don't believe</p> <p>16 that there is any good or prescribed</p> <p>17 procedure for making that determination, and</p> <p>18 there is no reasonable screening test that</p> <p>19 can find that cancer when it is at an early</p> <p>20 stage.</p> <p>21 BY MS. BOCKUS:</p> <p>22 Q. Do you believe that obesity</p> <p>23 causes ovarian cancer?</p> <p>24 A. It certainly seems to be</p>	<p>1 for that population of women?</p> <p>2 A. Well, it varies depending on</p> <p>3 the research study that has been done, but</p> <p>4 I've seen odds ratios or relative risks all</p> <p>5 the way from 1 or even below to very high</p> <p>6 numbers, like 20 to 50.</p> <p>7 Q. 20.0, is that what you're</p> <p>8 saying?</p> <p>9 A. Yes, 20.0.</p> <p>10 Q. Not 1.2, but 20.0?</p> <p>11 A. Correct.</p> <p>12 Q. Okay.</p> <p>13 A. Which is a -- which would be 20</p> <p>14 times the normal risk without the exposure.</p> <p>15 Q. Okay. So we've got obesity and</p> <p>16 heavy exposure to asbestos. Any other risk</p> <p>17 factors that you're familiar with?</p> <p>18 MS. O'DELL: Objection --</p> <p>19 excuse me. Objection, misstates the</p> <p>20 doctor's testimony.</p> <p>21 You may answer.</p> <p>22 THE WITNESS: Okay.</p> <p>23 A. Other risk factors for ovarian</p> <p>24 cancer would include things like early</p>
Page 331	Page 333
<p>1 related to the occurrence of ovarian cancer</p> <p>2 from a statistical point of view.</p> <p>3 Q. What is the increase in a</p> <p>4 woman's risk of ovarian cancer if she's obese</p> <p>5 compared to a nonobese woman?</p> <p>6 A. In terms of numbers?</p> <p>7 Q. Yes, sir.</p> <p>8 A. I don't know the -- I don't</p> <p>9 know the numbers.</p> <p>10 Q. What other risk factors are you</p> <p>11 familiar with for ovarian cancer?</p> <p>12 A. Well, certainly work with</p> <p>13 asbestos is a risk factor, and we have a</p> <p>14 number of studies that have shown women</p> <p>15 working in the asbestos industry or women who</p> <p>16 are married to asbestos workers and have</p> <p>17 secondary exposure presumably from that are</p> <p>18 at risk for ovarian cancer.</p> <p>19 There are --</p> <p>20 Q. Let me stop you just one</p> <p>21 second.</p> <p>22 A. Yes.</p> <p>23 Q. What percentage -- what is</p> <p>24 their relative risk or what is the odds ratio</p>	<p>1 menarche, late menopause, never being</p> <p>2 pregnant. These are some of the more common</p> <p>3 risk factors that are identified.</p> <p>4 There are genetic risk factors</p> <p>5 that are known, like the BRCA mutations,</p> <p>6 which confer an increased risk. Family</p> <p>7 history.</p> <p>8 BY MS. BOCKUS:</p> <p>9 Q. Do you know the odds ratios of</p> <p>10 any of the risk factors that you just</p> <p>11 identified of never having children, having</p> <p>12 early menarche or late menopause?</p> <p>13 A. Right offhand, I don't know</p> <p>14 what those odds ratios -- the range of those</p> <p>15 are.</p> <p>16 Q. Do you know if any of those</p> <p>17 odds ratios exceed 1.3?</p> <p>18 A. I think they do.</p> <p>19 Q. Does that lead you to conclude</p> <p>20 that those things cause ovarian cancer?</p> <p>21 A. It certainly argues for that.</p> <p>22 The -- there's a risk factor that derives</p> <p>23 from something. You need a mechanism to fill</p> <p>24 in the blank.</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 334	Page 336
<p>1 But also, some of these risk 2 factors are so common in the population that 3 we can concoct large cohort studies that will 4 have -- can have very low relative risks, 5 like on the order of 1.3 or even lower, and 6 still a significant result. 7 So the more common a factor is, 8 the easier it is to do the research and the 9 more likely you'll get a finding that's 10 relevant to interpretation. 11 Q. What pushes a talc particle 12 from the perineum into the vagina? 13 A. Probably mostly the law of mass 14 action. It simply goes of its own volition. 15 These small particles are always in motion 16 through molecular forces, and they simply 17 move in all directions, and some of them move 18 in that direction. 19 Q. Would that be true for any 20 small particles applied to a woman's 21 perineum? 22 A. Yes. 23 Q. Are you board certified in 24 medical toxicology?</p>	<p>1 Q. So you think you just ran into 2 her? 3 A. Yeah. 4 Q. The other people that you 5 identified that you discussed your report 6 with, did you ask them to read your report? 7 A. I asked them to look at parts 8 of it, early drafts of it to let me know if 9 they thought I was making sense. 10 Q. And did they offer you comments 11 and suggestions for changes in your paper? 12 A. Not really. Mostly they gave 13 me a pat on the back and said: I think 14 you're doing a good job, just sort of beef 15 this part up, and what do you mean by this, 16 maybe I could rephrase that. That sort of 17 thing. 18 Q. Did they give you written 19 suggestions? 20 A. No, these were all verbal 21 comments. 22 Q. Had you given them a hard copy 23 of the portions of your report that you 24 wanted them to comment on?</p>
Page 335	Page 337
<p>1 A. I'm not. I started practicing 2 medical toxicology before there was a board 3 in the specialty, and I've been grandfathered 4 into the profession as a member of the 5 American College of Medical Toxicology. 6 Q. How long did you talk to 7 Dr. Ness about her paper? 8 A. About her paper, probably a 9 minute and a half. About all kinds of other 10 things, for a while. 11 Q. What other kinds of things? 12 A. Mostly personal things that had 13 nothing to do with talc or this case. 14 Q. How long do you think that 15 conversation was? 16 A. Well, with Dr. Ness, nothing 17 lasts very long, so I would say ten minutes 18 at the most. 19 Q. Okay. Did you call her? 20 A. No. She's -- she comes and 21 goes in the same building where I office, and 22 my office is just on the opposite side of the 23 floor of hers, and I see her sometimes in 24 passing or in the elevator.</p>	<p>1 A. Yes. 2 Q. And they didn't redline it or 3 make -- draw arrows or anything like that for 4 you? 5 A. I think actually George Delclos 6 did draw some -- or make some notes on there 7 and hand it back to me, and I incorporated 8 those into my electronic version. 9 Q. Do you still have George's 10 notes to you? 11 A. No, I don't. 12 Q. Is he the only one out of the 13 people that you asked to look at it who gave 14 you handwritten notes? 15 A. Yes, I think so. 16 Q. Have you seen the term 17 "intrinsic elimination system" regarding the 18 ovary in any of the publications that you've 19 read? 20 A. I don't know, I may have. 21 Q. Can you think of one in 22 particular that discusses that characteristic 23 of -- that you believe relates to the ovary? 24 A. Well, the migration papers</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 338	Page 340
<p>1 discuss migration to the ovary. It would 2 probably be a talc paper, though. I don't 3 recall seeing it anywhere. 4 Q. Did you consult any gynecologic 5 textbooks? 6 A. No, I didn't. I may have 7 looked at some diagrams on the Internet. 8 Q. Okay. Did you consult any 9 gynecologic oncology textbooks? 10 A. Not textbooks, no. 11 Q. Do you know the position of the 12 Society of Gynecologic Oncologists on the 13 question of whether does talc increase a 14 woman's risk for ovarian cancer? 15 A. No, I don't. 16 Q. Would that be important to you 17 to know their position? 18 A. No, I don't think so. 19 Q. Do you know the position of 20 ACOG on whether the use of -- perineal use of 21 talc increases a woman's risk of ovarian 22 cancer? 23 A. I don't know that either. 24 That's not something I've looked at.</p>	<p>1 that? 2 A. Well, I saw this actually when 3 I first started this process, and I think 4 Dr. Longo was involved in that activity, 5 where they modeled the -- the application of 6 talcum powder and did some calculations based 7 on the amount of substance that was used, and 8 they measured it in things like shakes and -- 9 and then quantified the amount that was lost 10 from the container to determine what an 11 application amount was. 12 I don't think they were able to 13 go beyond that point in the modeling process. 14 Q. You didn't see anything that 15 Dr. Longo did that attempted to quantify the 16 amount of talcum powder from a single shake 17 that ended up on a woman's perineum, did you? 18 MS. O'DELL: Object to the 19 form. 20 A. I -- you know, I don't know the 21 answer to that, simply because I don't 22 recall, but I wouldn't be surprised that 23 there was an attempt made to do that. But 24 beyond that, I don't think anything would be</p>
Page 339	Page 341
<p>1 Q. Would that be important to you? 2 A. No. 3 Q. Do you have any scientific text 4 that suggests that an inert particle resides 5 on the ovary longer than it does in the 6 cervix? 7 A. Well, I have -- I have a paper 8 that relates to the time for dissolution of a 9 particle in biological fluids, which would go 10 to the length of time a particle of talc 11 remains in the ovary once it gets there. 12 But I don't have -- I don't 13 know that I have a scientific paper that 14 specifically says that it stays in the ovary 15 longer than it stays in the cervix. 16 Q. You testified that you 17 understand there have been some attempts to 18 quantify the amount of talc, I guess from a 19 single use, that ends up on the perineum. 20 Did I understand that 21 correctly? 22 A. Yes. 23 Q. Can you tell me what those 24 attempts are, who did them, where did you see</p>	<p>1 successful. 2 These were clothed subjects, so 3 that adds another factor to the calculation. 4 BY MS. BOCKUS: 5 Q. Is that the only experiment 6 that you're familiar with that you've seen 7 anywhere that attempts to quantify the amount 8 of talcum powder from a single use that ends 9 up actually on a woman's perineum? 10 A. There was another part of that 11 study where they applied it to underwear with 12 the same sort of calculation process. It was 13 all part of the same modeling process. 14 Q. And do you recall what 15 percentage of the talc applied to the 16 underwear ended up adhered to the woman's 17 perineum? 18 MS. O'DELL: Object to the 19 form. 20 A. I don't think -- I don't think 21 they measured the amount that adhered to the 22 perineum. I think what they were interested 23 in was proximity. 24 ///</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 342	Page 344
<p>1 BY MS. BOCKUS:</p> <p>2 Q. Okay. Can you tell me the</p> <p>3 names of the environmental websites that have</p> <p>4 been talking about IARC revisiting their</p> <p>5 classification of talc?</p> <p>6 A. There are -- there are a number</p> <p>7 of Twitter feeds and websites that carry on</p> <p>8 this kind of discussion. Science Interest is</p> <p>9 one of them. I think IARC Watch is another</p> <p>10 one. I have -- I get e-mails about some of</p> <p>11 these and end up going into them for a period</p> <p>12 of time and seeing if they have anything</p> <p>13 interesting going on. Some of them are</p> <p>14 searchable.</p> <p>15 And then I get e-mails from the</p> <p>16 ones that I visit about other ones. So I</p> <p>17 spend as much of my time deleting these</p> <p>18 e-mails without reading them as I do actually</p> <p>19 viewing the material.</p> <p>20 Q. So fair to say this is just</p> <p>21 chatter you've seen on the Internet in these</p> <p>22 different chat rooms or Twitter accounts that</p> <p>23 you visit from time to time?</p> <p>24 A. It's all Internet based, yes.</p>	<p>1 A. Uh-huh.</p> <p>2 Q. And echoing what my colleagues</p> <p>3 have said today, if there's at any point I</p> <p>4 ask a question that you do not understand,</p> <p>5 just stop me and ask me to rephrase it or let</p> <p>6 me know otherwise, okay?</p> <p>7 A. I will.</p> <p>8 Q. Thanks.</p> <p>9 So going back shortly to your</p> <p>10 scope of work, do you teach any coursework on</p> <p>11 talc or ovarian cancer?</p> <p>12 A. I teach some general courses.</p> <p>13 Up until last spring I taught a general</p> <p>14 environmental health course for graduate</p> <p>15 students in the Master of Public Health</p> <p>16 program at the School of Public Health, and</p> <p>17 in that course we did touch on things like</p> <p>18 environmental exposures that would include</p> <p>19 minerals of various varieties, but it was</p> <p>20 very cursory.</p> <p>21 Q. And was that curriculum</p> <p>22 specific to environmental and industrial</p> <p>23 products or minerals as opposed to consumer</p> <p>24 products?</p>
Page 343	Page 345
<p>1 MS. BOCKUS: Okay. I think</p> <p>2 that's all I have. Thank you.</p> <p>3 MS. O'DELL: Why don't we take</p> <p>4 a short break. We've been going about</p> <p>5 two hours.</p> <p>6 MR. ZELLERS: Do you have</p> <p>7 questions?</p> <p>8 MS. APPEL: I do, but --</p> <p>9 MS. O'DELL: Yeah, do you</p> <p>10 have --</p> <p>11 MS. APPEL: I don't have a lot.</p> <p>12 MS. O'DELL: Okay. Sure. Why</p> <p>13 don't you go ahead, and then we'll</p> <p>14 take a break. We have been going</p> <p>15 about two hours, but, Renée, please.</p> <p>16 If you're okay, Doctor.</p> <p>17 THE WITNESS: I'm fine.</p> <p>18 EXAMINATION</p> <p>19 BY MS. APPEL:</p> <p>20 Q. It's been a while since we did</p> <p>21 introductions, so just as a reminder, my name</p> <p>22 is Renée Appel and I'm here on behalf of</p> <p>23 Seyfarth Shaw and I represent Personal Care</p> <p>24 Products, counsel.</p>	<p>1 A. We actually did touch on other</p> <p>2 consumer products as well in terms of the</p> <p>3 significant environmental problem that we</p> <p>4 have currently, but -- regarding the huge</p> <p>5 volume of personal care products that goes</p> <p>6 into our aqueous waste stream and how that's</p> <p>7 affecting the aquatic environment as well as</p> <p>8 groundwater and so forth.</p> <p>9 As a matter of fact, in that</p> <p>10 course, as part of the culmination of the</p> <p>11 course, there are student workgroups that</p> <p>12 develop presentations on a particular topic,</p> <p>13 and the topic of personal care products has</p> <p>14 been a favorite choice for the last several</p> <p>15 years.</p> <p>16 Q. But your curriculum did not</p> <p>17 include talc among those products?</p> <p>18 MS. O'DELL: Object to the</p> <p>19 form.</p> <p>20 A. I think talc may have been</p> <p>21 represented as an individual mineral on a</p> <p>22 slide that listed many minerals.</p> <p>23 BY MS. APPEL:</p> <p>24 Q. Earlier today you had mentioned</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 346	Page 348
<p>1 a shared file. Is that shared file something 2 that you created or plaintiffs' counsel 3 created? 4 A. It's something that I think 5 plaintiffs' counsel created for me to be able 6 to send them documents and receive documents, 7 and it's a Dropbox share file. It's -- at 8 this point I think it might be mine. I'm not 9 sure just exactly who's in charge of that or 10 runs it, but it comes directly into my 11 Dropbox file. 12 I know I had to boost my 13 subscription to Dropbox in order to hold the 14 2 gigabytes of data from -- that we were 15 putting into there. 16 Q. Is there anything from that 17 Dropbox file that you relied upon in forming 18 your opinion in your report that you have not 19 already provided to defense counsel? 20 A. No, everything that was in that 21 Dropbox that I've relied upon has been 22 identified here. 23 Q. Who prepared Exhibit B to your 24 report?</p>	<p>1 accumulating information in the draft as a 2 result of my review of the literature. 3 So if I had to separate things 4 out, I would say that, by far, the -- most of 5 the time has been spent in reading articles 6 and reviewing them and comparing them with 7 other articles, and a comparatively small 8 amount of time has been spent in drafting the 9 report. 10 Although there were some 11 strings of activity which was all report 12 drafting basically, I would say probably 85 13 to 90% was research, seeking articles, 14 reading them, reviewing them, and comparing 15 them. 16 Q. And you also testified earlier 17 today that you discarded information not 18 relevant or interesting to you. 19 How did you make that 20 determination? 21 MS. O'DELL: Objection to the 22 form. 23 A. The things that I discarded did 24 not seem to fit into my gestalt of the</p>
Page 347	Page 349
<p>1 A. Exhibit B was a list of 2 articles from the research literature 3 included in the Dropbox that -- that I think 4 does not -- I don't know whether it includes 5 the referenced articles from my report or 6 not, but they were all part of the same 7 collection of research articles and 8 supplemental documents. 9 Q. And my question, Dr. Carson, 10 was: Who prepared that exhibit? 11 A. The exhibit was prepared by the 12 plaintiffs' attorneys. 13 Q. You testified earlier that you 14 have spent approximately 150 to 180 hours in 15 your expert retention work; is that correct? 16 A. Correct. 17 Q. Can you estimate what portion 18 of that time was spent researching versus 19 what portion of time was spent actually 20 drafting your expert report? 21 A. Those two things are in some 22 ways difficult to separate because I would -- 23 I was writing my report the entire time that 24 I was reviewing the research materials and</p>	<p>1 understanding of this question and the 2 opinions that I wanted to express. They may 3 have been interesting information and useful 4 for some purposes, but not for this 5 particular report. 6 BY MS. APPEL: 7 Q. Was some of that information 8 that you discarded based on relevancy or that 9 you determined was not of interest 10 information that may have been different than 11 your opinions? 12 A. No. I didn't discard any 13 research because the opinions provided 14 differed from my own. These were things that 15 really were irrelevant to the question. 16 I remember finding an awful lot 17 of geological research stuff that just didn't 18 have any relevance to the question. 19 Because I used such broad 20 search terms, I ended up pulling in a whole 21 lot of things that were not necessary or 22 useful, and those just went in the trash. 23 Q. You testified earlier that you 24 have not treated any patients with ovarian</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 350	Page 352
<p>1 cancer; is that correct?</p> <p>2 A. Not knowingly, not because of</p> <p>3 ovarian cancer.</p> <p>4 Q. Have you ever diagnosed any</p> <p>5 patients with ovarian cancer?</p> <p>6 A. I think when I was in medical</p> <p>7 school or residency, I probably participated</p> <p>8 in that on several patients.</p> <p>9 Q. Have you ever instructed a</p> <p>10 patient not to use talcum powder products?</p> <p>11 A. I hadn't up until a month or</p> <p>12 two ago, but I've been asking people about --</p> <p>13 about their talcum powder use just as sort of</p> <p>14 a curiosity in mentioning that there might be</p> <p>15 a risk.</p> <p>16 Q. Do you ask that of all your</p> <p>17 patients?</p> <p>18 A. I would say no, I don't usually</p> <p>19 ask the men that, but I probably should.</p> <p>20 Q. And have the responses to those</p> <p>21 inquiries of your female patients and their</p> <p>22 talcum product use, has that been used at all</p> <p>23 to inform your opinions in this case?</p> <p>24 A. I don't think so. There have</p>	<p>1 usually administer to my patients, and I have</p> <p>2 plans to add that as a question in my</p> <p>3 environmental exposure survey. Which I</p> <p>4 haven't done already, but will as soon as I</p> <p>5 get the opportunity.</p> <p>6 BY MS. APPEL:</p> <p>7 Q. You testified earlier today</p> <p>8 that you do not believe there was ever a</p> <p>9 point where talcum powder did not contain</p> <p>10 asbestos, correct?</p> <p>11 A. Yes.</p> <p>12 Q. So in forming your opinion in</p> <p>13 your report, you've assumed that the talcum</p> <p>14 powder does contain asbestos, correct?</p> <p>15 MS. O'DELL: Object to the</p> <p>16 form.</p> <p>17 A. Well, I think the asbestos</p> <p>18 contribution to this whole issue is important</p> <p>19 and significant. I think there's good</p> <p>20 evidence that whatever we call talcum powder</p> <p>21 is carcinogenic and responsible for ovarian</p> <p>22 cancer -- as a cause of ovarian cancer, but I</p> <p>23 can't say -- I can't say based on looking at</p> <p>24 a can of talcum powder whether or not it has</p>
Page 351	Page 353
<p>1 been very few that I have asked that question</p> <p>2 in the last month or so. I've had a limited</p> <p>3 clinic schedule during this period of time.</p> <p>4 We had the holidays and other things, so I</p> <p>5 haven't seen that many patients.</p> <p>6 And of those I've asked about</p> <p>7 it, it seems about half of the women have had</p> <p>8 a history of using talcum powder.</p> <p>9 Q. And of those women that are</p> <p>10 using -- have told you that they have used</p> <p>11 talcum powder, are those women diagnosed with</p> <p>12 ovarian cancer?</p> <p>13 A. No.</p> <p>14 Q. So suffice to say the inquiry</p> <p>15 that you've asked of your female patients</p> <p>16 concerning their talcum use has nothing to do</p> <p>17 with the question that you've been posed in</p> <p>18 this particular litigation?</p> <p>19 MS. O'DELL: Object to the</p> <p>20 form.</p> <p>21 A. Actually, that's the only</p> <p>22 reason I've been asking them. It's not</p> <p>23 something that came to mind earlier. I have</p> <p>24 an environmental exposure survey that I</p>	<p>1 asbestos in it or how much.</p> <p>2 BY MS. APPEL:</p> <p>3 Q. Have you formed an opinion,</p> <p>4 Dr. Carson, on whether there's a relationship</p> <p>5 between pure talc and ovarian cancer?</p> <p>6 MS. O'DELL: Objection to form.</p> <p>7 A. My opinion is there is, but</p> <p>8 that's based on the research reports that</p> <p>9 have been done using so-called pure talc,</p> <p>10 talcum powder, and I am -- I -- my opinion is</p> <p>11 that it's unlikely that those test substances</p> <p>12 actually are pure talc.</p> <p>13 BY MS. APPEL:</p> <p>14 Q. So again, Dr. Carson, in</p> <p>15 forming your opinions, you have done so on</p> <p>16 the belief that all the talc powder products</p> <p>17 or just pure talc do, in fact, contain</p> <p>18 asbestos?</p> <p>19 MS. O'DELL: Objection to form.</p> <p>20 A. It is my opinion that all</p> <p>21 talcum powder products do contain a certain</p> <p>22 amount of asbestos, even if it's extremely</p> <p>23 small.</p> <p>24 My opinions have been formed</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 354	Page 356
<p>1 based on research that has been done on 2 available talcum powder products, so I guess 3 the research would have been done using some 4 small quantity of asbestos in all of those 5 studies. 6 BY MS. APPEL: 7 Q. You also testified today, 8 Dr. Carson, that you have found in your 9 research that there is a dose-response 10 relationship between talcum powder products 11 and ovarian cancer, correct? 12 A. Well, a number of the research 13 studies, the epidemiology studies have shown 14 positive and statistically significant 15 trends. 16 Q. And those trends that you're 17 relying on, Dr. Carson, actually only relate 18 to duration and frequency, correct? 19 MS. O'DELL: Objection to form. 20 A. Yes, they do relate to duration 21 and frequency, which is the only surrogate we 22 have for dose. 23 BY MS. APPEL: 24 Q. So in forming your opinion,</p>	<p>1 classified by IARC. 2 BY MS. APPEL: 3 Q. But it's your opinion that a 4 possible carcinogen -- strike that. 5 It's your opinion that any dose 6 of a possible carcinogen can cause cancer? 7 MS. O'DELL: Objection to form. 8 A. Yes, I think there is a 9 potential for any dose of a carcinogen to 10 cause a cancer. There's also the principle 11 that the lower the dose, the less likely it 12 is, the lower the risk is for developing a 13 cancer. 14 BY MS. APPEL: 15 Q. And your opinion extends to 16 those particles that have not been identified 17 as carcinogens, but may just be possible 18 carcinogens? 19 A. I think talc has been 20 identified as a carcinogen. 21 Q. So you disagree with the IARC 22 classification? 23 A. The IARC 2B classification is a 24 carcinogenic classification.</p>
Page 355	Page 357
<p>1 Dr. Carson, you have not determined a level 2 of harmful exposure to talcum powder products 3 that causes ovarian cancer? 4 A. That's correct. 5 Q. And you did not conduct a dose 6 assessment between talcum powder products and 7 ovarian cancer, correct? 8 MS. O'DELL: Objection to form. 9 A. Well, I did not conduct a 10 dose-response, but I am of the opinion that 11 there's no safe threshold for exposure to a 12 carcinogen until such a threshold is 13 identified. 14 BY MS. APPEL: 15 Q. And does that include 16 Category 2B particles as well -- 17 MS. O'DELL: Objection. 18 BY MS. APPEL: 19 Q. -- that it's a possible 20 carcinogen? 21 MS. O'DELL: Objection to form. 22 A. It includes the talc that was 23 discussed in the IARC report. Those 24 conclusions have nothing to do with how it's</p>	<p>1 Q. But you recognize and -- that 2 there are different types of categories that 3 IARC has? 4 A. Yes. 5 Q. And that -- it's that talc that 6 does not contain asbestos was not, in fact, 7 categorized as a Group 1, correct? 8 A. That's correct. 9 Q. So is it your opinion, then, 10 looking at other 2B-classified particles by 11 IARC, that any exposure to pickled vegetables 12 would cause cancer? 13 A. We know that there are a number 14 of carcinogens that are regularly present in 15 things like the food that we eat. We have a 16 rule that says that those things should not 17 be included in food items unless they have 18 passed a particular exemption process. 19 Pickled vegetables are 20 something that people have been familiar with 21 and have been using for hundreds of years, 22 and things like talcum powder are things that 23 have been used for -- well, at least a 24 hundred years, but probably considerably</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 358	Page 360
<p>1 longer.</p> <p>2 And whether or not those things</p> <p>3 are carcinogens, there are people who still</p> <p>4 find enough value to offset that factor in</p> <p>5 their own lives and they can make their own</p> <p>6 decisions regarding their exposure.</p> <p>7 It's a similar concept to</p> <p>8 people who choose to smoke. Although smoking</p> <p>9 is an addictive behavior, people are aware</p> <p>10 that it causes disease, including cancer, and</p> <p>11 yet they continue to smoke.</p> <p>12 We continue to eat grilled</p> <p>13 meats, even -- most of us know now that</p> <p>14 grilled meats contain polycyclic aromatic</p> <p>15 hydrocarbons that are known carcinogens, some</p> <p>16 of them Group 1 carcinogens, and yet, we</p> <p>17 continue that practice and revel in it even.</p> <p>18 That's just part of what we do as human</p> <p>19 beings.</p> <p>20 The issue with talc is a</p> <p>21 complicated question in my mind. I think I'm</p> <p>22 straying a bit from your -- from your</p> <p>23 question, but baby powder, for example, is</p> <p>24 something that has a very -- very dear sort</p>	<p>1 A. Pickled vegetables.</p> <p>2 Q. -- I had was pickled</p> <p>3 vegetables, and the question was whether or</p> <p>4 not is your opinion that any consumption of</p> <p>5 pickled vegetables causes cancer?</p> <p>6 MS. O'DELL: Objection to form.</p> <p>7 A. I believe the primary form of</p> <p>8 cancer that's potentially related with</p> <p>9 pickled vegetables is stomach cancer, and</p> <p>10 there is a slight increase in risk with</p> <p>11 consumption of pickled vegetables for</p> <p>12 everybody who does it.</p> <p>13 BY MS. APPEL:</p> <p>14 Q. Okay. And what about gasoline</p> <p>15 or exhaust?</p> <p>16 A. Gasoline meaning the fuel?</p> <p>17 Q. Yes.</p> <p>18 A. Well, gasoline used to contain</p> <p>19 a significant amount of benzene, which was</p> <p>20 a -- determined to be a carcinogenic</p> <p>21 substance. In recent years, most of the</p> <p>22 benzene has been removed from gasoline, so</p> <p>23 now there's very little benzene in vapors</p> <p>24 that are expressed.</p>
Page 359	Page 361
<p>1 of relationship to many people.</p> <p>2 The experience with that from</p> <p>3 the time you were a baby until you grow up</p> <p>4 and have your own children involves a lot of</p> <p>5 the use of baby powder in many, many</p> <p>6 households. That's a difficult relationship</p> <p>7 to break. It's psychological as much as it</p> <p>8 is knowledge based.</p> <p>9 So as we go through the</p> <p>10 decades, we get a little safer and safer as</p> <p>11 we begin to peel these habits, these</p> <p>12 dangerous habits away from our lives and</p> <p>13 accept better lifestyles.</p> <p>14 MR. ZELLERS: Move to strike as</p> <p>15 nonresponsive.</p> <p>16 MS. APPEL: Respectfully --</p> <p>17 MS. BOCKUS: Is he finished?</p> <p>18 MR. ZELLERS: I don't think so.</p> <p>19 THE WITNESS: I can go on.</p> <p>20 BY MS. APPEL:</p> <p>21 Q. Yeah. My question was more</p> <p>22 narrow, and I was analogizing your opinion as</p> <p>23 to talcum powder and was asking about other</p> <p>24 2B classifications, and my example --</p>	<p>1 But there's a small amount. So</p> <p>2 when you inhale gasoline vapors, you are also</p> <p>3 exposing yourself to a very small amount of a</p> <p>4 carcinogenic substance.</p> <p>5 As far as exhaust is concerned,</p> <p>6 diesel exhaust in particular has -- contains</p> <p>7 particles that have been identified through</p> <p>8 various bioassays to be carcinogenic. So</p> <p>9 diesel exhaust is regulated as a carcinogenic</p> <p>10 material, even though we continue to be</p> <p>11 exposed.</p> <p>12 Q. And it's your opinion that any</p> <p>13 exposure that we all incur related to exhaust</p> <p>14 will cause us cancer?</p> <p>15 MS. O'DELL: Objection to form.</p> <p>16 A. It will cause an increase in</p> <p>17 risk of cancer. Doesn't necessarily cause</p> <p>18 cancer in everybody.</p> <p>19 BY MS. APPEL:</p> <p>20 Q. Okay. Are you aware that Saed</p> <p>21 has been hired by plaintiffs' counsel in this</p> <p>22 litigation?</p> <p>23 A. I am. And when I misspoke</p> <p>24 earlier today regarding the Taher paper, I</p>

Arch I. "Chip" Carson, M.D., Ph.D.

<p style="text-align: right;">Page 362</p> <p>1 was thinking of the Saed paper.</p> <p>2 Q. Okay. Last question: Counsel</p> <p>3 was asking you about the migration process,</p> <p>4 and you mentioned that in the course of</p> <p>5 particles moving up the track, that some of</p> <p>6 it may come back out even after it reaches</p> <p>7 the fluid surrounding the ovaries, correct?</p> <p>8 A. Yes.</p> <p>9 Q. So if particles have the</p> <p>10 ability to come back out, that means that</p> <p>11 there is, in fact, some form of an intrinsic</p> <p>12 elimination system.</p> <p>13 A. Well, if this is all based on</p> <p>14 mass action, it would not necessarily be an</p> <p>15 intrinsic elimination system, and I believe</p> <p>16 that talc particles, once they produce an</p> <p>17 inflammatory response, they become</p> <p>18 sequestered within that inflammatory milieu</p> <p>19 and no longer are available for movement back</p> <p>20 out into the fluid.</p> <p>21 I'm sure there's some small</p> <p>22 percentage of them that are an exception to</p> <p>23 that, but for the majority, that would be the</p> <p>24 case.</p>	<p style="text-align: right;">Page 364</p> <p>1 CERTIFICATE</p> <p>2 I, MICHAEL E MILLER, Fellow of</p> <p>3 the Academy of Professional Reporters,</p> <p>4 Registered Diplomate Reporter, Certified</p> <p>5 Realtime Reporter, Certified Court Reporter</p> <p>6 and Notary Public, do hereby certify that</p> <p>7 prior to the commencement of the examination,</p> <p>8 ARCH I "CHIP" CARSON, M D , Ph D was duly</p> <p>9 sworn by me to testify to the truth, the</p> <p>10 whole truth and nothing but the truth</p> <p>11 I DO FURTHER CERTIFY that the</p> <p>12 foregoing is a verbatim transcript of the</p> <p>13 testimony as taken stenographically by and</p> <p>14 before me at the time, place and on the date</p> <p>15 hereinbefore set forth, to the best of my</p> <p>16 ability</p> <p>17 I DO FURTHER CERTIFY that pursuant</p> <p>18 to FRCP Rule 30, signature of the witness was</p> <p>19 not requested by the witness or other party</p> <p>20 before the conclusion of the deposition</p> <p>21 I DO FURTHER CERTIFY that I am</p> <p>22 neither a relative nor employee nor attorney</p> <p>23 nor counsel of any of the parties to this</p> <p>24 action, and that I am neither a relative nor</p> <p>employee of such attorney or counsel, and</p> <p>that I am not financially interested in the</p> <p>action</p> <p>MICHAEL E MILLER, FAPR, RDR, CRR</p> <p>Fellow of the Academy of Professional Reporters</p> <p>NCRA Registered Diplomate Reporter</p> <p>NCRA Certified Realtime Reporter</p> <p>Certified Court Reporter</p> <p>Notary Public in and for the</p> <p>State of Texas</p> <p>My Commission Expires: 7/9/2020</p> <p>Dated: January 22, 2019</p>
<p style="text-align: right;">Page 363</p> <p>1 MS. APPEL: Okay. That's all I</p> <p>2 have. Thank you, Dr. Carson.</p> <p>3 MS. TINSLEY: I don't have any</p> <p>4 questions.</p> <p>5 MS. O'DELL: Okay. Why don't</p> <p>6 we take a short break.</p> <p>7 THE VIDEOGRAPHER: Off the</p> <p>8 record at 5:37, end of Tape 4.</p> <p>9 (Recess taken, 5:37 p m. to</p> <p>10 5:44 p m.)</p> <p>11 THE VIDEOGRAPHER: We're on the</p> <p>12 record at 5:44, beginning of Tape 5.</p> <p>13 MS. O'DELL: Dr. Carson, I</p> <p>14 don't have any questions, so this will</p> <p>15 conclude your deposition.</p> <p>16 MR. ZELLERS: Thank you,</p> <p>17 Doctor.</p> <p>18 THE VIDEOGRAPHER: Going off</p> <p>19 the record, 5:44. End of deposition,</p> <p>20 end of Tape 5.</p> <p>21 (Proceedings recessed at</p> <p>22 5:45 p m.)</p> <p>23 --o0o--</p> <p>24</p>	<p style="text-align: right;">Page 365</p> <p>1 INSTRUCTIONS TO WITNESS</p> <p>2</p> <p>3 Please read your deposition over</p> <p>4 carefully and make any necessary corrections.</p> <p>5 You should state the reason in the</p> <p>6 appropriate space on the errata sheet for any</p> <p>7 corrections that are made.</p> <p>8 After doing so, please sign the</p> <p>9 errata sheet and date it.</p> <p>10 You are signing same subject to</p> <p>11 the changes you have noted on the errata</p> <p>12 sheet, which will be attached to your</p> <p>13 deposition.</p> <p>14 It is imperative that you return</p> <p>15 the original errata sheet to the deposing</p> <p>16 attorney within thirty (30) days of receipt</p> <p>17 of the deposition transcript by you. If you</p> <p>18 fail to do so, the deposition transcript may</p> <p>19 be deemed to be accurate and may be used in</p> <p>20 court.</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p>

Arch I. "Chip" Carson, M.D., Ph.D.

Page 366	Page 368
<div style="text-align: center;">ERRATA</div> <div style="text-align: center;">PAGE LINE CHANGE</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div> <div style="text-align: center;">REASON: _____</div>	<div style="text-align: center;">LAWYER'S NOTES</div> <div style="text-align: center;">PAGE LINE</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div> <div style="text-align: center;">_____</div>
<div style="text-align: center;">Page 367</div> <div style="text-align: center;">ACKNOWLEDGMENT OF DEPONENT</div> <p>I, ARCH I. "CHIP" CARSON, M.D., Ph.D., do hereby certify that I have read the foregoing pages and that the same is a correct transcription of the answers given by me to the questions therein propounded, except for the corrections or changes in form or substance, if any, noted in the attached Errata Sheet.</p> <div style="text-align: center;">_____</div> <div style="text-align: center;">ARCH I. "CHIP" CARSON, M.D., Ph.D. DATE</div> <p>Subscribed and sworn to before me this _____ day of _____, 20 ____.</p> <p>My commission expires: _____</p> <div style="text-align: center;">_____</div> <p>Notary Public</p>	

A				
a.m	accessed	299:15 329:14	257:3	302:24 317:6
1:16 8:2,8 31:10	42:3	352:2	adolescence	318:5 326:11
89:5,6	accomplished	added	267:16,24	327:6
ability	249:23	115:22 175:24	adopt	agreed
211:18 362:10	account	addictive	100:13	235:23 236:12
364:9	162:11 163:13	358:9	adopted	239:4
able	166:18 224:14	adding	98:16	agreeing
34:22 36:1 38:12	268:6,8,20 277:14	119:15	advantage	133:10
42:22 64:3 71:15	accounts	addition	240:5	ahead
115:13 141:9	277:19 342:22	14:1 24:9 68:8	advice	21:22 25:4 39:21
154:11,14 175:20	accumulated	215:23	164:14	67:10 282:12
190:1 191:16	310:15	additional	African-American	290:18 315:13
216:2 220:1	accumulating	14:2 17:12 24:10	196:23 198:3	343:13
258:17 281:10	348:1	24:20 25:18 28:3	270:19	aid
299:8 309:17	accurate	51:15 60:8 68:11	age	186:10
313:9 325:12,17	14:21 22:11 365:19	72:6 217:18	162:12 163:15	air
325:21 326:8	Acheson	additions	agencies	186:3 187:3
340:12 346:5	145:12 154:19	57:24	93:24 97:7	aklevorn@burns...
Abney	achieved	additive	agency	2:9
36:22,23,24 37:8	259:7	300:5	178:23 179:1 219:9	al
37:14 38:1,17	acidolite	address	219:11 225:23	5:9,10,12,13,18,19
45:23,23,24 55:2	144:21	32:4 38:2 93:13	294:24	6:4,6,7,8,10,13,14
65:15 284:16	acknowledge	165:6 214:16	agent	6:16 26:5
285:1,12	221:18	294:22	179:13,18,20	Alabama
absence	ACKNOWLED...	addressed	226:24 227:9	2:5
72:16 99:23 240:19	4:12 367:1	215:2 216:3	228:21 235:12	albumin
academic	ACOG	addresses	agents	183:18 189:6
70:12 76:5	338:20	294:23	178:15 179:10	allege
Academy	act	addressing	225:22 226:3,16	138:23
1:18 364:2,19	317:11	291:5 295:1	226:21 227:7	alleged
accelerate	action	adds	ago	143:22 153:9 175:7
311:22	96:6,6 98:2 99:22	169:7 249:14 341:3	30:8 37:2 235:12	298:23
accelerated	272:12 299:23	adhered	250:13 320:8	allegedly
287:3,14	300:2 334:14	341:16,21	327:13 350:12	152:22
accept	362:14 364:14,16	adhesions	agree	Allen
359:13	activities	116:17 119:3,12	75:6,14 77:20 78:3	2:2 8:18,20
acceptance	27:18 31:17 58:16	120:6,19 132:24	92:22 96:4 106:10	allow
213:11	60:9 232:6 257:4	133:4,14 185:6	120:14 121:2	12:4 254:21
accepted	319:5 328:14	adjust	134:14 159:2	allows
102:18 103:18,23	activity	268:15	160:23 167:18	42:19 87:18
250:12 320:24	340:4 348:11	adjusted	168:13,18 172:14	allude
330:7	acute	269:4 272:22	180:2 218:3	86:17 128:9
access	198:16,20	administer	239:14,15 253:20	alluded
13:23 102:1,9,10	acute-phase	352:1	253:23 258:12	289:4
162:5 321:12	318:10	administered	264:22 266:7,23	alterations
	add	188:23	277:21 290:20	319:3,3
	83:16 119:17 256:3	administration	293:20 294:6	altered

314:17 altering 329:1 alternative 132:16 150:16,20 Amanda 2:8 8:22 America 3:5,10 American 32:14 77:13 335:5 amosite 146:7 amount 55:16 73:5 143:22 152:11,21 153:9 170:21 171:2,2,2 171:7,16 177:21 202:21 231:12 232:3 263:10 279:7 299:2 301:4 319:19,20 339:18 340:7,9,11,16 341:7,21 348:8 353:22 360:19 361:1,3 amounts 73:5,16 167:5 169:11,16 176:5 211:4 amphibole 31:10 146:5,17 analogizing 359:22 analyses 113:24 114:4 analysis 80:23 86:4 163:13 191:18 192:18,21 193:22 219:2 220:4 252:19 257:17 analyzes 219:22 analyzing 215:12 anatomical	84:3 anatomy 207:22 209:9 and/or 139:4 171:7 221:22 Angeles 2:15 animal 291:5 293:14,17 294:1 animals 286:24 290:9 291:1 291:3 292:11,20 294:6 Annie 69:5,10 answer 11:18 12:4,5 23:7 39:17 40:9 53:18 64:4 81:15 92:14 92:14,20 105:14 110:10 112:9 115:13 135:16,24 141:9 148:4 156:12 161:9 162:23 172:4 188:5 189:4 206:15 208:18 220:1 307:4 316:7 332:21 340:21 answered 88:23 106:17 110:15 116:20 128:7 137:22 152:6 157:2 228:15 242:5 answering 150:2 answers 159:12 180:14 367:5 anthophyllite 144:11,23 145:3,4 145:5 146:6 antiinflammatory 131:8,20 antioxidant	314:18 Antonio 3:4 apart 28:5 207:18 apologies 74:4 257:23 apologize 285:19 296:16 apparent 211:2 251:8 apparently 208:22 appear 10:17 222:4 258:10 appearances 4:2 56:19 appeared 77:13,17 appears 258:7 276:3 316:2 Appel 3:17 4:8 9:9,9 343:8,11,19,22 345:23 349:6 352:6 353:2,13 354:6,23 355:14 355:18 356:2,14 359:16,20 360:13 361:19 363:1 appendices 102:2,11 Appendix 19:13 21:21 apples 254:18,18 application 86:13 87:11,16 88:4,9,12,13,21 109:3 110:24 111:14 117:6 119:24 147:2 152:18 167:10 183:13 185:9 210:8 230:11 231:6,10 232:4 296:10 302:1	306:16 319:22 340:5,11 applications 194:7 applied 109:3 116:15 119:14 201:5,7,16 201:24 264:16 302:4 306:14 321:11 334:20 341:11,15 applies 218:7 228:20 236:15 apply 186:19 231:4 235:17,19 applying 240:9 appointment 61:7 appreciable 202:21 appreciate 195:20 approach 42:15,18 95:16 98:11,16 99:15,19 99:20 100:4 312:3 325:20 approaches 93:12 approaching 28:11 appropriate 98:10 99:22 164:18 293:15 365:6 approximately 347:14 April 30:21,24 33:19 218:21 aquatic 345:7 aqueous 345:6 Arch	1:13 4:5 5:1 9:18 10:1 364:5 367:4 367:12 area 37:1 91:3 160:24 162:10 163:22 186:19 198:13 199:13 248:10 249:16 252:21 258:12 301:21 areas 43:3 70:19 198:22 199:2 201:19 argues 110:7 333:21 argument 213:10 argumentative 88:17 aromatic 358:14 arrive 215:1 241:19 arriving 251:11 arrows 337:3 art 41:18 208:12,17 arthritis 121:18 article 26:5,9,11,16,24 28:9,23 29:3,4,8 31:9,20 32:6,14 32:22 33:10,11 51:3,19 86:10 88:1,18 102:24 103:7,11 117:3 248:17 280:17 articles 25:6 28:3 51:14,17 86:17 87:8 104:23 105:1 125:1 183:11 185:5 192:8 347:2,5,7 348:5,7,13
---	--	--	--	---

asbestiform 290:10,22 295:19	216:3 228:14 242:5 278:19	43:23	365:12 367:7	90:24
asbestos 41:9,11,11 49:17 55:12,17,20 64:19 72:10,17,17 106:2 106:10 107:2 114:23 115:4,9 125:1 138:17,23 139:4,8,13,16,21 140:8,22 141:7 142:19 143:1 144:7,19,19 145:8 145:18,24 146:2,5 146:15,17 147:10 147:16,22 148:8 148:14 151:1 152:11,15,17,21 153:9,13,22 154:1 154:6,12,17 157:6 157:15 158:19 159:3 160:4,17 163:8 166:15 167:5,14 168:14 169:1 170:19 290:10,22 295:19 296:7 297:21 298:3,6,16,24 299:2 300:3 331:13,15,16 332:16 352:10,14 352:17 353:1,18 353:22 354:4 357:6	283:6 336:7 337:13 351:1,6,15 asking 92:1,12 112:7,10 112:24 119:24 136:3 174:17 308:24 309:1 316:22 317:14 350:12 351:22 359:23 362:3 aspect 137:8 173:19 aspects 22:17,19,20 216:20 aspirin 131:9,13,20 assemble 24:8 40:18 assess 111:20 231:19 assessed 258:19 assessing 99:2 113:23 assessment 5:15 30:13 53:6 89:15 94:23 95:22 96:10,17 172:11 172:15 173:1,8,13 173:14,20,21 174:5,13,18,20,21 174:23 175:2,7,14 175:20 205:22,24 214:6,12 232:9 355:6 assessments 97:6 175:4 205:18 205:21 assigning 225:7 assist 43:21 assistant 58:8 289:7 assisted	associate 61:8 associated 63:16 121:24 122:1 122:7 131:10 145:9,11,16 152:12,15,19 153:10,13,16 154:13 179:9 248:10 249:17 252:17 277:6 association 17:7,17 27:3 38:19 53:21 54:10 55:8 64:19,20 85:2 91:20 107:3 110:2 110:7,12 111:3 129:18 130:9 138:7,12 166:12 196:11,21 198:1 223:5 229:24 230:9,20,21 233:2 233:12 235:3,4,17 235:24 237:8,23 238:8,16 240:20 243:12 244:3,15 246:3,9 247:22 248:23 250:6 254:1 262:16,21 265:6,11,23 270:17 associations 109:9,20,21 121:13 193:18 221:24 223:7 233:8 245:10 272:23 assume 11:20 181:2 assumed 352:13 Assuming 116:4 assumption 139:14,19 296:3 attached 21:7,21 323:2,5	attachments 15:24 16:2 21:1 attempt 188:3 231:18 277:13 325:7 340:23 attempted 340:15 attempts 231:23 232:1,2 268:9 339:17,24 341:7 attention 105:2 attenuated 193:18 attorney 36:21 364:13,15 365:16 attorneys 13:2 20:3 24:6 51:11 72:15 75:18 96:11,13 101:7 103:22 104:14 141:22 347:12 attorneys' 46:8 attribute 307:3,6 attributed 244:6 Australia 308:9 author 27:5,24 29:2 77:6,7 101:13 129:14,16 246:22 286:13 author's 186:14 authored 31:9 32:16 62:21 authoring 89:11 authorities 89:21 authority	authorized 39:24 authors 101:17 104:2,16,19 105:5,11 106:23 107:11 108:8 111:11 128:1,3 163:6,17,21 187:10 193:4,5,8 194:11 196:18 210:22 241:7 243:9 244:2,22 247:18 248:6,20 249:10 269:4 271:24 277:16 availability 37:6 available 13:24 16:18 25:6 34:2 40:19 50:15 54:13 69:1 78:5 94:16 174:1,9 214:18 215:14,23 216:9 228:9,10 313:18 354:2 362:19 Avenue 3:8 average 231:2 280:19 avoid 241:10 avoiding 244:24 aware 14:23 25:15 27:15 31:21 37:4 41:8 46:22 49:19,20 50:22 51:20 52:1 52:3 67:1,4 68:16 88:1 116:23 122:9 127:24 131:7 148:21 153:23 161:16 185:5 200:9 203:3,6 204:5 212:24

213:21 229:4 241:9 268:3,4 322:7,8,12,15,20 325:20 358:9 361:20 awareness 55:17 awful 349:16	based 19:21 71:17,19 75:24 85:17 93:22 94:5,15,20,23 105:8 113:1 143:13,17 148:1 153:22 157:17 180:4 192:24 193:8 214:15,22 220:3 223:13 224:20 227:21 228:8 235:13 251:21 274:18 280:2 284:19 300:1 306:2 308:7 308:14 310:16 311:17 340:6 342:24 349:8 352:23 353:8 354:1 359:8 362:13	Beasley 2:2 8:18,20 beef 336:14 began 40:18 43:15 65:13 beginning 67:20 81:8 89:8 96:1 177:5 197:5 199:10 253:12 363:12 begins 24:22 begun 241:4 behalf 57:11 343:22 behave 213:3 behavior 74:7 358:9 beings 249:19 358:19 belief 200:15 206:22 353:16 believe 22:12,13,19 25:8 27:22 34:6,9 35:5 37:17 39:4 53:5 54:20 61:22 67:12 69:18 70:3,4 72:24 84:16 85:1 89:12 95:7 96:11 103:1 106:18 111:9 114:17 115:11 127:11 128:3 139:7,10 140:20 144:7,18 145:2 147:14 148:2,6 149:9 153:24 185:3,12 186:14 189:1 190:23 202:20 203:24 206:19 210:20 217:14,17 218:5 219:4	228:20 231:8 234:11 236:15 238:3 242:6 246:21 256:12 257:7 267:5 271:23 278:20 279:4 281:21,24 282:6 292:12 296:2 302:18,22 305:7 309:12 312:7 317:3 318:1 330:15,22 337:23 352:8 360:7 362:15 believing 17:5 Beneath 125:12 benzene 360:19,22,23 Berge 6:13 242:15,15 Berry 129:20 145:22 Bertolotti 146:8 297:14,15 best 12:2 74:7 364:9 better 109:14 249:7 326:6 359:13 beyond 202:11 340:13,24 bias 210:19 213:6,8,9 221:22 227:23 228:11 239:17 240:23,24 241:3,7 241:9,13,24 243:10 244:6,13 244:20,23 245:1 269:7,8,13,18 270:3 276:11,15 277:14 biases 221:18 Biddle	2:19 9:3 billable 40:4 billing 45:9 biloba 229:3 binder 13:13 15:8 24:1,3,8 28:5 30:1 192:5 257:24 bioassays 361:8 biochemical 312:21 biologic 59:18 229:24 321:13,16 322:5,9 322:13,16 biological 87:17 111:23 112:1 132:18 224:12 229:8 230:10 339:9 biologist 60:21 biomarkers 313:19 biostatistician 61:24 253:17 bit 56:5 83:12 256:18 270:13 296:21 305:5 358:22 black 183:16 292:1 bladder 202:18,22 blank 333:24 blanks 187:14 block 257:24 blood 170:11 Blount
B				
b 3:17 19:4,5,13 21:21 25:1 286:1 346:23 347:1 baby 22:2,3 85:6 144:16 152:23 177:22 232:9 274:21 275:6,11,20 358:23 359:3,5 back 31:21 37:9 77:6 125:16 136:20 142:15 145:10 158:1 163:19 168:11 207:19 227:6 228:24 246:17 278:6 307:8 314:22 324:10 327:7 336:13 337:7 344:9 362:6,10,19 background 155:23 156:1 236:24 bacteria 202:14 bad 321:18 balance 248:8 Balkwill 127:5 banned 133:19,24 134:9,15 134:18	baseline 176:1 195:8 basic 83:9 93:17 211:1 238:10 292:18 310:24 basically 276:5 313:4 348:12 basis 27:17 31:15 40:20 120:18 141:19 157:5,11 158:9,14 199:2,13 279:20 306:22 307:1 310:3 326:13,19 327:18 Bates 71:17,20 bathe 199:18,20 bathing 199:22 beads 316:23 bear 182:18 291:12			

5:18 31:10 32:7 33:10 blue 320:11 Blumenkrantz 183:18,21,22 board 61:20,23 204:9 334:23 335:2 Bockus 3:2 4:7 9:5,5 234:1 236:7 284:1,7,9 284:11 285:7,17 288:14 289:13,16 289:21,22 290:14 292:8,21 293:22 294:8,18,20 295:10 296:4,19 297:1,2 298:1 299:10 300:16 302:23 303:10 304:21 305:6 307:18 309:20 310:8,10,22 314:2 315:6,11,15 316:6 316:19 317:12,18 318:4,12,21 319:18 320:2,19 321:2 323:1 324:11,17,20 325:4,22 327:1 329:15 330:21 333:8 341:4 342:1 343:1 359:17 bodies 170:4 199:2,4 body 110:20 122:11 132:19 135:10 154:9 181:24 183:8 200:7 201:4 209:1 219:13 247:19 248:21 250:3 256:9 270:17 272:2,14 272:24 278:21 279:5,9,12,14	296:8 298:6,24 299:5 301:10 304:14 317:20 bolts 68:1 book 77:16,18 boost 346:12 borderline 237:2 born 313:3 bottled 170:7 bottom 69:10 196:19 bound 189:6 Bradford 107:20,24 110:18 215:7,12 219:22 225:4 229:21 230:18 240:7,9 255:1 264:8,16 Branch 58:5 BRCA 333:5 break 86:24 87:4 89:2 176:20 343:4,14 359:7 363:6 breast 196:24 breathe 329:5,10 Brett 79:21 brief 118:22 briefly 190:22 225:12 bring 23:24 28:8 29:3,17 33:4,7 58:2 British	129:17 broad 309:23 349:19 broken 279:9 brought 12:12,20 13:10,14 13:20 14:2,8,20 15:2,7 24:9,21 28:4,21 29:24 33:15,20 34:1,8,9 36:6 50:18 51:16 51:20 100:21 123:20,22 124:6 124:11 176:13 178:9 218:13 building 234:12 335:21 built-in 312:14 burden 182:19 Burns 2:8 8:23 business 76:1 149:7,12,20 bystander 329:24 <hr/> C <hr/> c 2:1,13 3:1 297:5 CA-125 314:9,22 318:6,14 calculate 280:16 calculated 212:11,12,14 280:23 calculation 306:20 341:3,12 calculations 251:9,21 340:6 calendar 45:17 California 2:15	call 37:23 335:19 352:20 called 38:17 77:16 189:24 calls 46:7 203:7 235:8 Camargo 6:7 162:20,21 165:18 Canada 5:15,22 30:14 65:8 89:15,22 93:5,19 94:3,18,20,22 95:22 96:4,10,17 96:21,24 97:3 98:13,15 99:1,13 99:18 100:9 205:9 205:24 Canadian 30:3 Canal 2:9 cancer 17:8 23:5 27:5 30:5 32:1 36:17 38:4 38:20 41:3,12,14 41:16,24 53:8,23 55:9 60:12,21 62:10,19 63:1 66:13 84:17 85:3 85:7 86:8 89:23 90:8,14,18,21,23 91:4,6,10,12,14 91:18,22 93:7,14 95:10,13,18 106:3 106:12,14,15,19 107:5 108:5 109:4 111:1,15 112:3 113:23 116:8 119:22 120:6,14 120:19,23 121:3,8 121:22,24 122:8 122:18,22 123:9 123:14 125:1,5 126:1,5,16,24 127:7,13 128:2,13	129:8 130:10 131:3,14,18,22 132:7,12,14 135:1 135:15,21 136:6 136:17,19 137:1 138:7,8,13 139:9 139:11 140:4 145:9,12 152:12 152:16,20 153:10 153:13,21 154:2 154:13,17,23 155:1,6 158:19 159:4,10 160:5 161:19 162:12 163:8,15 167:22 168:8 178:23 179:15,16 185:14 191:2,7,16 192:23 194:18 196:11,24 197:17 202:18,24 210:9 211:4,5 212:20,21 216:10 220:7,8 221:21 222:1 223:8 224:13,15,17 225:24 230:13,23 231:3 234:7,21 235:4,18,20 237:9 237:24 238:9,17 244:4 245:4 246:4 246:10 247:23 248:11,24 249:17 250:7 252:4 255:5 256:22 260:21 265:12,24 267:1,9 267:17 268:2,6,19 269:19,21 270:18 270:19 273:1,5,9 273:14,21,24 274:7,14,20 275:4 275:11,20 276:4,6 277:7 279:17 280:8,13,22 281:8 281:22 282:14,19 284:20 286:18,23 288:23 289:2,3 292:4,4,5,5 296:9
---	---	---	---	--

306:3,5,8,14 307:7,13 308:12 309:13 310:4 314:6 316:16 326:14,18 330:4,9 330:19,23 331:1,4 331:11,18 332:24 333:20 338:14,22 344:11 350:1,3,5 351:12 352:22,22 353:5 354:11 355:3,7 356:6,10 356:13 357:12 358:10 360:5,8,9 361:14,17,18 cancer-causing 286:3,11 294:1 cancerous 317:10,16 cancers 17:4 91:8 93:16 121:11,14 122:2 123:14 153:17 166:14 167:3,8 168:6,10 179:2,8 213:2 236:16,23 237:2,3,5 238:12 251:1,2 280:2 capable 78:4 164:13 202:6 220:21 capacity 42:4 56:20 caption 19:4 carbohydrate 279:7 carbon 183:16 185:21 291:24 carcinogen 178:22 179:14,15 179:19 226:22 235:9,13 288:7,9 315:19 355:12,20 356:4,6,9,20 carcinogenesis	41:14,17 116:13 226:14 288:19 carcinogenic 28:12 81:20 91:5 114:23 138:18 139:4 154:6 169:6 171:20 178:16,17 179:21 225:7,9 226:4,17 227:1,10 227:13 229:3 249:19 272:14 291:23 300:22 311:14,15,23 312:10 352:21 356:24 360:20 361:4,8,9 carcinogenicity 83:18 169:8 180:4 248:12 249:9,20 290:9 295:18 carcinogens 288:13 312:19,24 356:17,18 357:14 358:3,15,16 care 3:20 9:10 343:23 345:5,13 careers 213:24 carefully 365:4 Caroline 3:12 9:12 caroline.tinsley... 3:13 carpentry 229:12 carried 193:17 196:20 211:18 carries 196:17 carry 241:17 342:7 Carson 1:14 4:5 5:1,5,6 6:3 8:14 9:18 10:1,18	13:4,9 14:9,19 15:18 20:10 21:3 21:10 26:2,6,19 29:14 30:16 31:5 32:8,19 36:7,10 67:18 74:10,16 89:10 98:21 99:10 124:17 130:3 149:23 150:13 159:21 163:3 164:9,18 165:5,17 171:11 173:6 177:7 192:11 195:23 225:15 243:1 247:8 253:14 271:1 283:10 284:10 289:9 347:9 353:4 353:14 354:8,17 355:1 363:2,13 364:5 367:4,12 Casale 146:11 case 21:24 38:9 40:4 50:4 51:7,9 57:16 64:15 66:12 68:2 78:4,15,17 80:12 80:20 81:4 95:8 96:8 105:19 108:4 110:17 120:2 123:5 141:6,13,20 144:4,8,20 147:12 147:15 148:7 156:5 167:11 171:6 173:17 174:13 176:8 185:12 187:17 191:23 196:6 211:8 215:18,20 217:15 219:2 228:16 236:19 242:7 246:14,17 246:21 252:13 293:21 302:22 329:11,18 335:13 350:23 362:24	case-control 125:18 126:8 223:4 232:17 233:1 238:14 239:15,17 240:13,14 241:5 242:2 243:13 244:5,16,21 245:9 246:1,7 251:6 253:21 254:10 258:22 259:3,5 260:13 case-controlled 239:22 250:17 255:14 case-specific 171:13 cases 1:8 37:11,12 57:6 76:10,11 78:15 131:4 140:9,10 159:5,9 160:16 162:4 175:3 185:14,17 224:15 224:17 240:3 250:22 251:10,24 254:20 273:4,23 274:24 278:3 306:3,8,8 327:15 329:1 catch 313:2 categories 225:12 357:2 categorized 357:7 category 113:24 146:7 226:3 226:6,11 227:9 229:5 355:16 causal 53:21 54:11 85:2 132:6 247:21 248:23 250:5 causation 17:2 100:10 109:3 218:6 220:5 233:9 233:13 234:6	cause 23:5 38:4 53:8 98:9 99:24 120:6,19,22 122:17 127:12 128:16 129:7 135:7,14,15 136:24 154:12 160:5 179:2 188:4 199:5 211:2 286:18 296:8 312:21 329:20 333:20 352:22 356:6,10 357:12 361:14,16,17 caused 166:14 198:21 224:17 286:22 313:11 causes 53:8 85:6 86:8 93:16 122:21 123:8 126:16 128:2,13 131:18 132:14,23 135:5 139:8,10 287:1,17 287:18 288:23 330:23 355:3 358:10 360:5 cavities 301:10 cavity 83:12 183:8 207:1 322:2 CDC 90:6,11,12 234:24 cell 115:1 139:1 312:12 312:15 314:20 cells 287:3,4,14 312:18 314:6 315:20 316:15,16 317:10 317:15,16 319:15 cells' 317:1 cellulose 279:8
--	---	---	---	---

cement 146:1,13	change 59:7 205:5 253:5 366:2	178:15 179:10	271:16 283:6 287:5,23 296:9 297:7	cleared 278:21 279:5
Center 1:15 90:3 93:6	changed 17:9 75:2,4 81:1 204:13,19	chemotaxis 199:6 287:2,13	cited 13:11 15:8,11,13 24:15 29:9 32:23 54:18 66:17,20 142:22 184:7 185:18 217:9 218:1 256:8 270:11 286:13 307:10	clearly 321:10
centers 90:17	changes 77:11 97:18 336:11 365:11 367:6	children 333:11 359:4	claim 115:23 133:2 138:16 169:5 208:5	cleavage 168:21 169:1
Century 136:20	channel 206:23	Chip 1:13 4:5 5:1 8:13 9:18 364:5 367:4 367:12	claiming 20:19 70:24	clinic 58:7 90:16 351:3
certain 12:12 13:15 75:5 80:20 135:5 206:18 213:10 216:17 243:15 284:11 353:21	Chappell 6:4 129:19	choice 345:14	citizens 219:9	clinical 27:17 31:16 38:24 58:8 60:4,8 70:12 76:5
certainly 117:1 141:18 158:7 159:9 226:20 262:3 330:24 331:12 333:21	chapter 77:16	choose 164:17 358:8	citizens' 221:16	close 202:1 223:9
CERTIFICATE 4:10 364:1	characteristic 337:22	chose 33:4	claim 115:23 133:2 138:16 169:5 208:5	closely 329:20
certification 61:23 328:16	characteristics 199:5 286:3,11 308:20	chromium 169:7,11,24 171:7 172:1 173:22 180:8,18 181:6	claimed 214:22	closer 198:13
certified 1:19,20 61:20 334:23 364:3,3,20 364:20	characterization 239:4	chronic 114:18 115:24 116:6,10 121:7 131:14 199:2,9,13 252:15	class 229:2 272:12	closes 191:4
certify 364:4,7,10,13 367:4	characterize 85:18 140:7 249:7	chrysotile 145:18 147:9 154:21,23	classification 6:11 178:20 225:6 225:8 288:8 342:5 356:22,23,24	clothed 341:2
cervical 198:12 199:14,24 200:12	charge 93:20 144:3 346:9	cigarette 265:13,18	classifications 225:14,22 359:24	co-workers 134:12
cervix 189:10,13 200:20 201:6,7,16 206:23 209:15,22 302:11 302:14,15 322:10 339:6,15	Charles 129:19	circumstances 186:18 206:20 327:12	classified 162:7 233:18 249:18 356:1	coach 164:23
chairperson 95:17	chat 342:22	cite 19:11,12 20:5 29:11 33:11 71:2 71:4 123:6 130:12 148:10,17 181:23 183:5,12 184:2 189:8 191:22 195:3,11 196:5 208:24 211:12 216:8 217:6,13,19 217:21,23 242:17 242:21 246:22 259:19 270:11	class 229:2 272:12	coaching 165:2
chairs 95:20	chatter 204:2,5,6,24 205:3 278:9 342:21		classification 225:14,22 359:24	coauthors 101:6,9
chance 110:4,5,8 227:23 228:11 245:17 251:22	check 193:12		classified 162:7 233:18 249:18 356:1	cobalt 169:7,12,24 171:7 172:1 173:22 180:8,19
	chemical 179:19,20 328:9 329:4,9		classifies 178:14	cofactor 267:21 277:18
	chemicals 63:7,13,15 72:23 73:6,17 75:1 114:24 115:16,18 172:6 174:6 175:15,19 176:7 177:9,13,22		classify 63:17	coffee 265:11,13,17,21,23 266:1
			clause 107:8	cogent 224:12
			cleanly 264:2	cohort 125:8,9 232:21 237:7,8 238:7,10 240:12,20,22 241:12 242:1 244:5 245:10
			clear 11:15	
			clearance 84:6 132:19 249:8	

250:15,23 251:5,7 251:13,18,20 252:3,14,20,21 257:12 258:12 334:3	18:16 25:16 198:4 commencement 364:4 commencing 1:16 comment 96:1 221:10 336:24 comments 44:2,4,8 96:20,24 97:2 117:13 216:23 247:15 336:10,21 Commerce 2:4 commission 364:22 367:17 committee 2:6 95:16,17,20 129:17 committees 95:15 common 144:24 145:2 161:24 265:13 333:2 334:2,7 commonly 144:17 communicated 65:4,7 104:15 communications 45:20 47:1,12 77:1 community 204:8 240:1,2 248:16 330:7 community-based 238:20 companies 72:5 75:9,22 143:15 companies' 150:23 company 58:17 60:15 69:19 70:14 71:1,4 73:8 76:6,8,13,17,18 77:22 149:13 150:23 151:13	comparable 187:4 201:15 254:18 comparatively 348:7 compare 298:16 319:20 compared 170:13 201:6 331:5 compares 298:5 comparing 239:23,24 348:6,14 comparison 132:20 161:14 166:17 214:23 299:1,9 compelling 220:10 230:13 292:19 complete 15:11 18:13 22:13 22:19 98:8 172:14 305:24 completely 106:13,19 112:9 120:14 complicated 358:21 component 74:22 137:2 176:2 177:17,20 components 63:21 64:13 114:21 140:15 147:21 287:12 composed 279:6 composition 304:20 concentration 59:18 198:11 concentrations 76:20 concept 313:5 358:7 concern	269:10 concerned 236:1 361:5 concerning 272:13 351:16 concerns 166:15 conclude 111:12 128:1 210:18 243:9 252:20 333:19 363:15 concluded 91:19 122:24 166:11 220:4 246:1 247:19 272:17 286:17 288:5 concludes 106:2 conclusion 86:19 106:5,6 107:7 108:9 141:11,19 163:12 193:3,5,7 215:14 223:1,12 224:11 224:19 248:5 250:2 286:12,20 305:8,12,20 306:2 364:12 conclusions 18:16 76:22 85:16 87:19,22,23 89:13 117:17 171:4 173:10 215:2,9 216:22 218:2,4 222:5 241:19 251:11 253:1,1 326:8 355:24 concoct 334:3 condition 116:24 119:16 121:19 122:5 conditions 121:3,7 186:5,18 conduct	215:13,17 355:5,9 conducted 61:14,15 85:11 114:3 206:8 209:5 209:12 327:9 confer 333:6 conference 46:7 confidence 126:9 223:8 227:24 228:12 261:23 276:21 confirm 85:12 185:4 confirmed 152:9 confirming 328:24 conflicts 105:4 conformed 137:7 confound 264:18 confounder 265:19 confounders 266:14,17,18 268:6 268:9 confounding 210:19 221:23 227:23 228:12 264:6,7,11,19,23 264:24 266:3,4,8 266:11,20 268:21 confused 330:1 confuses 265:6 conjunction 76:16 connected 120:11 329:20 connection 110:23 119:21 329:19
---	---	--	--	---

consensus 224:16 234:5,11	131:21 191:11	contains 16:7 71:23 139:16	171:20	62:7,19 63:2,10
consequence 152:23 153:3	63:20 64:13	139:20 141:21	contribution 78:24 299:22	63:13 64:10,11,14
consider 51:4 54:9,12 55:20	constituents 64:2	157:6,15 158:10	352:18	81:6 82:4 83:9,21
80:20 90:20 123:4	constructed 149:15	361:6	contributor 167:10	84:19 85:4 90:14
137:11,14,19	consult 338:4,8	contaminant 143:23	control 90:3 93:7 157:24	90:18 96:2 98:5
156:23 215:7	consultant 55:23 56:4	contaminated 77:12 147:16 148:8	316:17,24 317:11	101:12 105:15
232:24 238:22	consultants 105:11	contamination 106:2,11 107:2	318:2	106:3 108:23
239:9,11 241:1	consulting 56:16	187:13	controlled 266:21 268:1	110:13 114:5
257:11	consumer 22:5,7 73:8 143:23	contemporaneous 94:4	controlling 317:1	116:18 120:7
considerably 357:24	151:13 152:4	Content 31:10	controls 187:14 273:8,13,18	121:8,9 122:14,16
consideration 221:14	155:9 344:23	context 56:15 78:11	273:20 274:21	125:14,18,23,24
considerations 91:9 225:4 254:17	345:2	continue 58:7 74:18 263:19	278:4 315:16,17	127:13 128:13
considered 13:16,18,22 61:6	consumers 214:8	283:7 295:9	316:9	131:1,5,17,23
94:6 124:3 130:19	consumption 360:4,11	358:11,12,17	conversation 118:23 335:15	132:8,24 134:4
159:4,8 174:24	contact 37:24 39:19 202:2	361:10	convoluted 296:21	138:7,13,14,15
175:3,5 206:2	contacted 36:20,21 37:5,14	continued 43:16	copies 13:11,14 14:9	146:24 147:11
210:20 214:6	284:16	continues 206:24	36:14	148:15,20 152:24
219:1 221:20	contain 16:4 19:10 139:13	continuing 244:12	copy 10:20 13:17,21	154:2 155:7 157:7
225:3 258:16	140:22 141:6,13	continuous 43:17	14:11 21:13 28:6	158:11 166:9,9
264:6	141:17 148:14	contract 59:3	30:2,20 149:24	168:2 170:5 172:3
considering 110:18 215:1 222:6	290:22 295:19	contractions 188:15	150:7 159:19	172:6 176:8,9
258:9 325:12	352:9,14 353:17	contractor 59:7	162:22 195:19	177:10,14,23,24
considers 205:12	353:21 357:6	contradicted 205:10	259:24,24 260:1	178:3,13,19
consistency 107:12 108:1,4	358:14 360:18	contribute 18:11 20:22 74:22	321:3 336:22	179:16,17,22
109:7 110:19	contained 16:16 54:21 72:24	80:22 221:21	cornstarch 29:6 132:10,15,17	181:7 182:2,5,6
210:24 222:20	73:1,6 150:17	contractor 59:7	132:22 133:19,24	183:10 184:22
229:24 230:9	152:22,22 175:8	contradicted 205:10	134:8,14 278:20	185:2,9,19 186:1
237:22 240:7,10	175:15 181:1	contribute 18:11 20:22 74:22	278:20 279:4,13	186:3,4,11,20
240:11 245:6	285:9	80:22 221:21	Corporation 58:12 59:11,11,13	187:15,20,23
249:22	container 340:10	contributed 20:5 73:20	59:11,11,13	188:12,18 190:11
consistent 110:12,13 111:6,9	containing 5:21 139:4 290:10	contributes 296:8	correct 20:20,21 22:22,23	190:16 194:16,23
111:13 112:19		contributing	39:1 45:3,4 49:6	195:7 196:7,8,14
114:4 132:6 223:5			53:23 55:12 57:19	197:16,19,22
232:20 237:23			60:16,17,19,20,24	198:6,22 200:22
238:4			61:4,18,19 62:2,5	201:20 202:16
consistently				205:7,21 206:6
				207:3 208:2,4,10
				209:3,4 210:10
				216:7,11 217:8
				220:8 221:9,11,12
				222:21 223:17
				224:2,6 225:9,10
				226:1,4,5,8,19,23
				227:2,11,14,20,24
				228:13 230:2,14
				232:15,17 233:5,9
				234:15,22,24

235:1,15 236:1,19 237:9,17,20,24 238:9,17 240:2,4 240:14,17 246:4,5 246:10 250:8 253:15,16 254:4 255:2,19 256:24 257:5,10 258:24 259:11 260:15 261:7 262:6,18,22 264:17 265:9 266:16 267:2 268:16,21,24 269:5,11 270:1 271:5,8,22 272:19 272:20 273:6,9,22 274:4,10,17 275:3 275:13 276:18 280:22 281:8 283:17,18 286:7,8 286:9,18 287:6,7 287:18 288:9,16 290:5,11 291:8 294:2 295:21,23 296:12 297:9,21 298:7 301:17 304:24 307:13,24 308:3 309:2,5 311:1,2 314:6 318:7,15,18 320:15 321:4,5 322:6,10,11 324:3 324:23 325:5 326:14,19 327:3 327:18 329:1 332:11 347:15,16 350:1 352:10,14 354:11,18 355:4,7 357:7,8 362:7 367:5 corrected 134:3 corrections 58:1,19 365:4,7 367:6 correctly 100:1 107:6,9	166:20 222:2,3 301:14 324:21 339:21 correlation 322:21 correspondence 87:17 corresponding 27:24 278:4 306:9 corrugated 146:13 cosmetic 31:11 57:16 60:15 157:6 158:10 168:14 180:9,20 181:7 248:9 249:16 cosmetics 219:15 Cottreau 127:2 Coughlin 3:7 9:8 counsel 2:6,11,16,22 3:5,10 3:15,20 8:15 11:19 15:5 23:1 25:11,15,17,20 26:17 27:10 30:10 32:3 33:5 34:16 34:19,24 35:19,24 36:5 38:15 39:3 45:20 47:6 53:17 65:20 71:13 72:5 101:10,15 102:13 104:24 105:12,18 105:23 108:23 118:12,20 142:23 148:22 343:24 346:2,5,19 361:21 362:2 364:14,15 count 251:1 country 97:23,24 100:11 233:20 couple	25:5 30:8 40:21 87:2 176:15 181:21 218:18 231:22 256:15 257:6 286:21 305:15 327:10 course 56:5 73:3 74:13 344:14,17 345:10 345:11 362:4 courses 344:12 coursework 344:10 court 1:1,19 9:15 12:6 364:3,20 365:20 Coussens 117:10 126:21 covariate 272:17 Covariates 272:8 covered 43:5 185:3 285:21 covers 22:17,20 Cramer 6:10 195:12,15,17 195:22 196:5,9 197:24 255:8 259:13 260:9 create 199:12 279:13 created 25:8 148:22 313:3 346:2,3,5 credentials 104:18 criteria 109:2 215:8,13 229:21 237:22 240:7,10 255:1 264:8,16 criterion 110:19 crocidolite	144:13,15 145:11 145:16 146:6 147:9 154:21,22 crossed 324:19 Crowley 48:16,17,18,19,24 49:2,21,22 Crowley's 50:8 73:3 CRR 364:18 crystal 180:13 cull 42:22 culmination 345:10 culture 319:16 cultured 314:6 315:20 cure 100:8 curiosity 350:14 curious 40:17 current 41:17 94:13 120:3 148:1 205:11 247:19 248:20 250:3 312:5 currently 60:5 204:4 300:12 326:7 345:4 curriculum 5:6 21:6 57:18 58:20 70:23 344:21 345:16 cursor 344:20 cut 74:9 CV 58:1 64:23 77:4	D D.C 3:19 daily 231:9 232:10 260:22 261:16 262:13,15 263:10 263:11,14 302:5 306:22 307:1 309:24 damage 135:11 313:2,12 314:21 dangerous 359:12 data 76:24 149:3 150:17 211:19 215:14 220:11 263:24 273:11 274:18 277:23 278:1,2 280:3 290:1 291:5 307:9 346:14 date 1:17 57:20,21 58:2 227:4 284:22 364:8 365:9 367:12 dated 25:24 26:9 30:14 218:21 364:23 day 60:6 189:19 228:24 367:16 days 39:20 40:7 189:21 300:14 309:9 365:16 de 325:8 deal 164:16 239:5 dealing 168:10 199:9 dealings 37:2
--	--	---	--	--

dealt 137:16	342:17	151:17 159:21	231:14	diagnoses 307:17
dear 358:24	demonstrate 119:11 223:4 313:22	163:3 192:11,14 195:23 225:15 243:1 245:24	despite 166:11	diagnostic 329:2
deaths 306:5,9 307:7	demonstrates 126:14 276:11	247:3,8 249:7 271:1,4 289:9	detail 220:1	diagrams 338:7
decades 310:15 359:10	demonstration 98:9 99:23	363:15,19 364:12 365:3,13,17,18	detailed 285:2	Diana 282:18
December 30:14	dendritic 42:6	depositions 53:2 56:13 66:11 66:15 67:21 68:8 68:11,20,24 70:14 148:11 164:12	detect 211:19,23 251:12 252:9 253:3 255:22	diaphragm 201:17
decide 29:17	department 61:8 79:18 80:1,2 239:6	deposits 41:9 169:15	detected 180:8,19 188:2 211:24 243:12 244:15 251:14	die 233:20
decided 33:7 40:11 59:6	depend 308:17 310:18	deps@golkow.com 1:24	determination 78:6 280:12 330:17 348:20	diesel 361:6,9
decision-making 5:23 99:1,14,20	dependent 139:3 180:24	derived 205:24	determinations 194:14 251:10	differ 180:3 201:21
decisions 14:14 358:6	depending 181:3 306:18 332:2	derives 333:22	determine 85:23 157:14 190:4 258:18,22 318:24 330:3 340:10	differed 193:23 349:14
declare 226:21	depends 78:14 156:6 236:5 239:19	describe 14:20 208:15,23 309:10	determines 280:14	difference 19:2 21:19 194:9 194:12 201:12 212:18 242:1 252:9 277:19 315:21
deemed 365:19	depo 33:8	described 199:10	determined 59:14 91:12 143:18 259:1 279:24 280:7 311:8 349:9 355:1 360:20	different 43:3 68:7 93:11,12 94:2 97:22 106:6 137:9 138:21 139:2 143:15 155:5 168:15 172:6 179:8,9,11 179:21 181:2 186:17 213:2 225:22 237:21 240:11 254:16,16 254:17,20 261:3 280:2 291:24 293:7 305:5 316:20 342:22 349:10 357:2
defendants 2:17,22 9:1,4 52:4	deponent 4:12 8:13 367:1	describing 309:5	determining 330:8	differential 319:4
defense 52:12 57:14 346:19	deposed 66:5,12	description 5:3 84:14 237:15 266:3	develop 53:21 135:2 199:1 251:1 345:12	differentiate 168:24
defer 82:23 95:19 144:3 169:2 281:2	deposing 365:15	design 190:1 211:18 221:19 240:21	developed 330:9	differentiated 212:22
define 135:22 137:5 281:16 313:9 326:5	deposition 1:13 5:1,4 6:1 8:9 10:8,16,18 11:4 12:11,19 13:6 14:6,8 15:1,18,21 16:4,9 21:3,10 23:24 25:24 26:2 26:6,19,23 29:14 29:22 30:16 31:5 32:8,19 36:4,7 52:14 66:4,7,19 71:1,3 98:20,21 98:24 108:17,20 124:12,16,17 130:2,3 148:18,19 149:10,11,16,18 149:21 150:9,10	designated 227:18	developing 356:12	differently
defines 99:18		designation 227:16 228:10	development 135:20 136:5 284:20	
definition 23:20 136:2 228:18 292:18,23		designed 291:23	diagnosed 306:4 307:12 326:13,17 350:4 351:11	
definitions 228:23		designers 241:1		
definitively 162:6		designing 241:2		
degree 59:17,24 249:22		designs 254:15		
Delclos 79:20 337:5		desired		
deleting				

201:5 213:3 238:22 difficult 162:2 256:20 257:2 347:22 359:6 difficulties 161:17,21 dioxide 292:1 Diplomate 1:20 364:3,19 direct 82:2,11 83:4 181:14 243:17 322:21 324:6 directed 221:11 directing 294:15 direction 334:18 directions 334:17 directly 101:5 138:22 201:7 201:16 216:21 263:6 319:15 323:5 346:10 director 58:6,13,24 59:10 dirty 264:1 disadvantage 251:15 disagree 108:9,12 223:22 225:1 356:21 discard 42:23 349:12 discarded 348:17,23 349:8 discount 238:18 discounting 244:20 discounts 91:17	discovered 241:3 discuss 80:11 114:12 133:13 183:2 244:2 278:13 338:1 discussed 13:5 21:14 38:10 80:12,14 107:12 127:3 170:18 225:11 235:11 238:9,23 244:23 254:3 336:5 355:23 discusses 28:10 29:5 127:6,7 280:11 337:22 discussing 13:5 93:14 discussion 79:9 81:1 163:20 164:4 165:20 166:1 204:7 285:3 342:8 discussions 47:23 48:1 disease 77:14 90:3 93:7 122:17,21 123:8 126:15 127:12,19 128:2,13 196:14 233:21 265:7 269:15 328:19,21 358:10 diseases 121:12 dish 300:7 dispute 151:2,6 disseminate 93:22 dissolution 339:8 dissolved 279:10	distillation 214:21 distinction 238:19 distinctions 154:15 distinguish 34:22 35:5 154:11 162:2,7 distinguishing 161:18 distort 266:4 269:13,19 DISTRICT 1:1,1 division 287:4,15 DNA 312:13 313:11,22 doctor 73:24 92:2,10,13 92:21 113:1,4 127:23 164:11 207:6 289:20 295:7 314:24 315:23 343:16 363:17 doctor's 332:20 document 1:7 6:12 10:21 28:17 30:7,9,12 33:3 68:15 71:22 91:24 92:16 93:2 99:9 100:13 102:6 113:10,17 120:3 134:7 193:13 218:13,24 225:13 257:22 282:17 291:14 316:5 documentation 72:16 documents 12:12,15,17 13:15 14:7,24 19:6 24:5 25:19 29:23 30:19 33:24 34:1,5,7,13	34:15,18,23 36:14 71:5,9,12,16 72:3 72:3,4,6,22 75:7 75:10,14,21 76:6 76:9,13,19 77:22 77:23 78:10,10,11 78:18,19 136:4 158:5 245:8 346:6 346:6 347:8 doing 39:21 40:1 45:13 46:4 48:8 147:24 148:3 232:5 285:11 336:14 365:8 Donath 3:7 9:7,7 dose 153:4,5 206:16 230:14 255:9 256:21 298:3,13 298:16,23 311:1 311:18 324:22 325:2 326:2 354:22 355:5 356:5,9,11 dose-response 111:13 112:20 173:1,9,13,19,21 174:1,4,9 222:14 222:16,18 223:9 254:24 255:4,8,15 255:17,21,23 256:5,21 257:8 259:20 262:9,24 263:1,17,19 270:14 354:9 355:10 doses 326:10 Doug 3:23 8:4 Downey 69:17,18 Downey's 69:20 Dr	6:3 8:13,19 13:4,9 14:9,19 20:10 27:24 31:2 33:19 36:10 46:11,16,18 47:9,24 48:2,5,11 48:12,16,18,19,24 49:2,16,21,22,22 49:23 50:1,8,11 51:5,9,21 67:18 73:3 74:10,16 79:20,21 80:8 89:10 99:10 117:3 117:9,12 149:23 150:13 164:9,18 165:5,17 171:11 173:6 177:7 218:22 236:12 253:14 283:10 284:10 335:7,16 340:4,15 347:9 353:4,14 354:8,17 355:1 363:2,13 draft 5:15 30:13 44:1 89:14 95:22 97:6 205:18,21,22,24 348:1 drafting 347:20 348:8,12 drafts 336:8 dramatically 75:4 draw 76:22 86:18 87:19 171:4 337:3,6 drawing 204:9 drawn 85:17 87:21 draws 322:21 drink 311:4 Drinker 2:19 9:3 drinkers
---	---	--	---	--

265:14,21,22 drinking 170:7 265:23 266:1 drive 5:21 13:20 36:5,11 Dropbox 346:7,11,13,17,21 347:3 drug 219:14 drugs 131:8,20 due 29:6 110:3,5 171:19 187:12 251:12 265:24 Duffy 3:7 9:8 duly 9:19 364:5 uplicated 125:19 duration 212:15 241:16 272:24 354:18,20 dust 229:15,18 dusting 140:3 201:17 302:5 Dydek 47:16,19,24 48:2,5 48:12 49:23 50:1 DYKEMA 3:2	216:4 238:23 259:14 268:12 270:13 278:19 293:1 321:7 345:24 347:13 348:16 349:23 351:23 352:7 361:24 early 65:21 214:1 222:7 245:24 330:19 332:24 333:12 336:8 easier 334:8 east 3:3 145:21 EASTERN 1:1 easy 150:4,6 eat 357:15 358:12 echoing 344:2 Edelman 163:23 165:22 166:8 editing 43:17 editors 249:12 edits 103:6 education 61:12 effect 98:9 99:24 100:14 138:18 154:23 211:2,23,23 244:20 251:13,14 253:2 274:19 276:5,14 329:21 effectiveness 314:18 effects 63:15 129:13	137:17 170:20 213:23 270:3 272:14 effort 143:21 150:15 efforts 140:6 147:21 Egli 183:16 185:18 187:10 188:20 eight 24:10 192:19,22 193:9 194:5 297:8 either 24:15,21 29:9 31:15 32:23 37:17 52:17 73:7 75:8 82:2 92:13 94:6 96:5 101:21 139:21 140:8 176:6 177:21 181:14 194:12 226:21 282:4 302:12,16 316:8 327:15 328:7,15 338:23 electronic 337:8 element 317:14 elements 169:13 170:1 172:16 elevated 146:14 304:9 elevation 314:9 elevator 335:24 eliminate 200:5 eliminated 134:3 eliminates 199:23 elimination 83:20,23 84:10	208:8,11,16 209:3 305:16 337:17 362:12,15 Ellis 2:13 3:12 9:13 elongated 137:7 emphasizes 99:21 employee 58:7,24 364:13,15 Enbridge 58:12,18 59:11,13 endeavors 213:18 ended 194:12 340:17 341:16 349:20 endogenous 115:7 312:20 endpoint 287:11 ends 339:19 341:8 Energy 58:14 59:10,12 engineering 59:19 England 145:14 English 211:21 entire 52:20 69:13 83:11 291:22 294:10 347:23 entirety 68:21 entry 58:14 environment 181:3 312:19 345:7 environmental 31:12 55:19 57:7 57:11 179:1 278:12 312:24 328:10 342:3	344:14,18,22 345:3 351:24 352:3 enzyme 319:4 enzymes 314:18 epidemic 182:22 epidemiologic 191:15 211:11 224:21 231:1 236:24 239:5 263:24 264:20 270:19 326:3 epidemiological 84:16 104:21 111:19 210:6 212:7 213:1 247:20 248:8,21 249:15 250:4 266:5 epidemiologist 61:5,7 79:23 238:24 239:9 epidemiologists 211:14 232:24 233:18 236:1 epidemiology 61:9,18,21,23 87:14 140:1 213:14,17 220:17 239:7,12 270:20 308:14 309:2 354:13 epithelial 116:11,12 133:12 153:17 235:20 236:16 237:1 313:12 316:16 323:10,13 epithelium 322:1 Epstein 5:17 31:2 33:19 218:22 equal
<hr/>				
E				
<hr/>				
E 1:17 2:1,1 3:1,1,2 364:2,18 e-mail 37:22 47:11 e-mails 342:10,15,18 earlier 51:5 68:19 79:7 116:22 136:15 167:12,22 214:5				

equal 245:17	97:21	257:2 280:7 346:9	357:18	195:22,23 196:5
equally 235:18	evaluate 170:19 249:8	exam 62:9 189:9,11,12	exercise 280:24 325:18	218:20 219:5,5
equipment 162:6	256:21 291:23	327:9	exhaust 360:15 361:5,6,9	225:14,15,20
equivalent 72:20 259:2 261:16	295:2	examination 4:5 9:21 284:8	361:13	242:24 243:1
302:1	evaluated 105:8	305:3 343:18	exhaustive 214:16	247:3,8 259:16
errata 4:11 365:6,9,11,15	evaluating 210:24 230:24	364:4	exhaustively 210:19	260:7 271:1,4,12
366:1 367:7	evaluation 228:21 269:14	examined 102:9 160:10 190:8	exhibit 5:4,5,6,7,9,10,12	282:22 283:1
especially 112:2 240:20	295:18	207:7 286:2	5:13,15,16,18,19	289:5,8,9,23
ESQUIRE 2:2,3,8,13,19 3:2,7	event 311:23	example 64:17 76:14 84:6	5:21,22 6:2,4,6,7	293:2,4,5 315:24
3:12,17	events 313:17	93:13 97:21 117:3	6:8,10,11,13,14	346:23 347:1,10
essentially 16:24 134:18	eventually 42:17 43:18 214:24	140:13 154:19	6:16,17 7:3,5,6	347:11
136:18 194:4	233:12	205:8 245:1	10:16,18 12:11,19	exhibits 5:1 6:1 7:1 21:2
220:3 274:19	everybody 360:12 361:18	265:10 267:7	15:17,18,21 16:4	53:1 68:24 69:2
306:7	evidence 87:14 91:20 93:22	268:11 269:18	16:16 17:10,15	148:11,22 149:4
establish 39:22 111:22	98:1 109:2 111:2	276:14 286:14	19:4,5 21:3,6,10	150:18 152:1
247:21 248:22	112:15 143:19	312:16 358:23	21:13,20,23 22:10	284:4
250:5	170:10 203:7	359:24	24:24 25:1,24	exist 97:20 253:2 296:7
established 85:19 86:1 220:5	204:15 206:4	examples 199:4	26:2,6,10,19,23	existed 161:17
313:19	210:24 211:1	exams 327:15 328:15	27:7,13,23 28:14	existing 212:13
estimate 45:12 166:7 174:1	220:11 222:16	exceed 333:17	28:18 29:14 30:15	exists 27:15 59:13 86:19
174:9 232:2	223:10 226:7,13	exception 15:12 362:22	30:16 31:4,5 32:7	209:21 213:18
256:20 257:2	227:22 228:3,8	Excerpt 6:17	32:8,18,19,22	254:2
347:17	230:9 233:14	exchanged 47:11	33:10,18 34:15,24	exonerated 286:10
estimates 39:8 193:22	235:13 247:20	excluding 216:17	36:4,7,12 43:14	expand 16:8
Estimating 282:19	248:8,22 249:15	exclusion 193:19	50:19 54:22 57:19	expanded 41:5,9
et 5:9,10,12,13,18,19	250:4 288:18,20	excuse 19:19 20:9 54:3	58:2,21 65:1,12	expect 16:8 17:13 131:19
6:4,6,7,8,10,13,14	288:22 290:1,2,7	73:22 81:22 86:20	66:18,21 68:10	167:2 191:7
6:16 26:5	290:8 291:3,8,11	105:14 128:22	69:4,8 70:24 71:6	194:16 197:16
Eternit 146:10	292:11,19,20	149:22 164:7	89:16,17 94:24	198:19 201:14
etiology 220:17	293:14,24 294:5,7	171:11 173:4	98:20,21,24 99:7	245:17 262:24
EU	296:1 301:2 304:4	189:11 207:10	100:21 101:14	263:18
	304:18 305:12	234:1 294:13	102:4,15,24	expected 300:4
	313:8,8 352:20	324:4 332:19	103:17 104:3,10	expense 252:17
	evidencing 181:24	exemption	106:1,21 124:16	expensive 241:15
	exactly 62:13 142:11		124:17 130:2,3	experience
	174:16 251:8		146:23 148:17,18	
			149:10,11,18,24	
			150:1,2,8,9,18,19	
			151:10,10 152:2,2	
			158:2,3,6,7	
			159:20,21 160:3	
			163:2,3 192:11,14	

19:23 118:19 121:6 359:2 experienced 159:10 experiment 317:5,11 318:3 341:5 experimental 116:23 120:2 185:21 188:4 189:17 247:20 248:21 249:6 250:4 290:7,8 291:1 294:5 experimentation 87:18 experiments 85:12 86:3,7 206:9 316:9 expert 5:5 10:11 15:16 37:5 47:14 48:7 48:14 49:19 50:2 55:11,20 56:17,21 57:3,9 66:11,15 67:23 80:5,9 117:24 118:20 137:12,15,20,23 156:13,15,24 168:20 171:13 187:8 207:16 224:4 239:12 252:13 347:15,20 expertise 151:1,6 280:21 experts 49:8,14 50:21 51:1 51:24 52:4,8,12 66:4,8,9 70:14 82:23 122:23 144:4 169:3 213:20 expires 364:22 367:17 explain 106:3,11,13,15 107:3 190:22	212:18 284:17 explained 111:8 explains 106:19 242:1 explanation 182:13 243:12 244:15 explanations 150:16,20 exposed 145:24 146:15 160:17,18 167:5 213:22 298:4,18 299:3 329:4 361:11 exposes 83:11 exposing 317:15 361:3 exposure 77:11 82:2,11,15 82:20 83:4,7 91:21 111:21 113:23,24 117:5 135:4,6 152:12,15 152:17 153:9 154:22 160:4 161:1 163:7 166:15 168:13,16 170:20,21 171:24 174:12,17,20 175:2,4,6,13,20 178:1 179:3,12,20 179:22 181:14,19 181:22 182:16,17 191:1,6 193:20 194:6 198:10,10 198:14,16,20 199:9,12,23 200:5 200:6 209:6,8 212:13,15 224:14 224:18 229:15 255:4,12 265:7 269:14,20 297:21 298:5,6,11 299:3 299:13 311:15,17	312:1,5,24 318:2 322:22 328:10 331:17 332:14,16 351:24 352:3 355:2,11 357:11 358:6 361:13 exposures 55:18,19 57:8,11 84:7 298:9 300:13 311:21 325:13 328:9 344:18 express 349:2 expressed 16:14 360:24 expressing 18:21 81:4 181:5 extend 41:14 extended 23:15,17 209:23 extending 43:2 extends 356:15 extensive 42:7 83:13 extent 35:3 75:6 155:18 170:9 external 86:13 87:10,15 88:3,12,20 119:24 185:8 externally 116:15 119:13 188:9 extra 228:24 extrapolate 325:8 extremely 76:3 241:15 353:22 <hr/> F <hr/> F 3:7,18	face 97:19 face-to-face 45:24 fact 84:3 85:19 86:1 91:18 108:3 132:5 132:22 133:18 191:9 192:1 199:8 238:3 241:15 244:2,22 246:22 249:12 257:7 262:23 288:3,5 302:24 304:7 345:9 353:17 357:6 362:11 factor 90:13,18 91:14 110:9 128:14 129:1 147:6 171:1 191:14,18 230:18 267:17 268:19,21 280:18 331:13 333:22 334:7 341:3 358:4 factoring 170:21 factors 19:24 95:12 107:21 108:1 162:11 163:14 166:18 215:8 219:23 221:20 230:4 266:20,24 279:22 280:1,15 330:14 331:10 332:17,23 333:3,4,10 334:2 factory 145:20 146:11 facts 214:21 faculty 239:6 fail 365:18 failed 187:13 220:10	232:1 failure 166:17 fair 11:21,23 31:23 74:15 211:24 246:18 265:15 266:1 285:8 294:11 301:3 342:20 fairly 84:13 86:18 145:17 214:16 235:9 279:10 282:9 324:6 fallopian 183:14 184:4 190:3 191:4 200:24 303:17 322:1,17 322:23 323:3,15 324:1,12 false 187:12 familiar 11:9 27:14 41:4 90:2,21 97:12 99:10 129:4,11,21 129:23 131:12,15 144:12 155:8,13 155:16 158:17,23 159:15 162:20 203:4 212:5 242:14 243:6 247:12 265:2 269:7 331:11 332:17 341:6 357:20 family 58:9 333:6 Fannin 1:15 FAPR 364:18 far 10:10 198:11 249:23 348:4 361:5
--	--	--	---	---

fast 303:17	19:10 20:4 40:2 41:13 216:1,22	323:17	first 29:2 30:24 36:16	170:6 219:14 357:15,17
faster 303:18	254:21 325:15	filter 187:14	40:8 65:10 77:6,7	footnote 148:16
fatal 233:21	female 82:3 83:5 145:13	fimbriae 322:1 323:14	81:18 83:15	force 189:10,13
fatality 306:10	181:15,18 207:24	final 103:7 107:8	114:16 124:24	forces 334:16
fault 241:5	209:8 303:21	finalized 16:19	140:1 160:9 166:3	foregoing 364:7 367:5
favorable 217:7,10	350:21 351:15	financially 364:15	215:20 230:18	foreign 199:2,4 209:16
favorite 345:14	feminine 288:6	find 34:20 42:18,19,20	237:15 261:12,15	315:18 317:20
fax 1:23	fewer 160:16	finding 91:15 111:12	286:1 301:7 326:2	form 11:22 17:21 18:22
FDA 5:16 30:21 31:2	fibers 72:11,17 114:22	132:6 142:18	340:3	19:20 25:3 37:16
33:19 65:4 133:18	115:5,8,10,10	143:1 167:2 194:6	fit 348:24	38:7 53:10 54:2
134:15 143:6,11	138:23 140:9	194:11 218:17	five 261:4,4,10 262:10	55:14 59:2 60:23
143:13 218:14,20	169:2 290:10,22	262:20 281:14,18	262:12,14 263:9	62:12 63:9,24
219:13,21 220:4	fibrosis 116:16 119:3,12	282:12 291:11	263:11 297:8	65:24 70:16 73:11
220:16,20 221:13	120:5,19 132:24	293:24 311:7	310:20	75:13 78:2,13,23
221:16 222:5,11	133:4,15 185:6	316:13 320:6	fixing 312:15	80:16 81:13 82:18
222:13,15,19	fibrotic 287:1,19	330:19 358:4	Fletcher 5:10 26:5,9 313:14	84:2,21 85:15
224:7,20 230:14	fibrous 77:12 114:23 115:7	findings 100:10 193:18	floor 2:15 335:23	86:15 87:12 88:6
234:14	115:9 137:5,6,12	222:11,11 223:21	Flower 2:14	92:18 94:12 95:4
FDA's 143:4,8 223:12	138:17 139:5,21	223:23 262:5	fluid 323:18,20 324:1	97:9 98:4 107:15
234:14	140:15 141:14,17	277:22 283:22	362:7,20	108:11 109:17
FDI 222:10	141:21 158:11	334:9 349:16	fluids 279:10 339:9	110:14 111:17
Federal 134:7	field 61:12 213:14,17	finds 123:7 197:24 226:7	FLW 1:5	114:7 116:20
feedback 79:14	figure 328:18	220:17 223:19	focus 22:14,16 38:20	119:6 120:9,21
feeds 342:7	file 24:6 35:23 346:1,1	253:22 254:21	93:15 94:2 249:24	123:11 127:15
feel 74:9 99:8 113:3	346:7,11,17	276:13 294:22	focused 230:14,19 249:22	128:6,19,24 132:1
164:5,9 289:19	filed 272:13 274:9,12	295:13	310:12	133:7 136:8 137:6
292:15	275:5,10,19 277:4	fine 39:14 173:7 343:17	fluids 279:10 339:9	137:10 139:23
Fellow 1:18 364:2,19	files 42:2	finish 12:2,5 74:1 103:13	FLW 1:5	140:24 141:24
fellowship 61:18	filings 271:21 276:2	finished 20:10 74:17 103:14	focus 22:14,16 38:20	144:2 147:5,17
felt	fill 333:23	173:5,6,7 207:11	93:15 94:2 249:24	148:23 151:4,14
	filled	207:13 283:4	focusing 216:17	152:6 153:2,15
		295:6 298:20	follow 11:10	154:4 155:12,20
		324:18 329:12,13	following 193:19	157:9 158:13,22
		359:17	follows 9:20 98:13,15	159:7 161:6
			food	162:15 164:24
				167:16 168:4,17
				170:15,24 171:10
				172:8,18 174:7,15
				175:10,17,24
				179:5,23 180:5

181:9 182:4,15	320:23 322:19	found	310:17 354:18,21	126:22 127:20
184:21 185:11	324:5,15 325:1,10	25:13 35:7,20	frequently	147:12 156:16
186:13 188:11	326:21 330:11	109:20 112:20	241:18	161:7,8 180:3
189:15 193:11	340:19 341:19	131:2 144:15,17	front	279:11 286:20
194:22 195:6	345:19 348:22	144:24 147:10	24:12 192:3 256:1	308:16 309:1
197:4,21 198:15	351:20 352:16	181:7 184:13,24	260:10	315:7 328:13
199:17 200:3	353:6,19 354:19	185:13 190:5,7,10	fuel	344:12,13
201:10 202:9	355:8,21 356:7	195:2,8 205:10	360:16	generally
203:10,20 204:18	360:6,7 361:15	221:16 223:3,6	full	38:8 44:20 97:6
207:5 209:11,19	362:11 367:6	256:4 261:9	98:8 99:23 244:1	122:6,16 147:10
210:15 212:3	formation	290:21 291:3	functional	178:14 236:15
214:10 216:13	19:9 120:12 176:2	292:10 293:13	206:21	generate
218:10 219:17	formed	314:16 354:8	funded	45:7
221:1 222:9	353:3,24	foundation	104:13,23	generated
223:16 224:1,23	former	165:1	funder	49:11
226:10 228:2	244:6	four	93:17	generic
229:7,14 231:10	formerly	124:21 125:9	funding	84:13
231:21 232:19	22:6	143:16 172:15	104:6,8,11 105:3	genetic
233:4,11 234:10	forming	189:20 245:21	105:17,22	267:13 312:13
234:17 235:7	18:9 271:16 346:17	252:21 261:3	further	314:12,14 319:2,3
236:3,7,21 237:11	352:12 353:15	297:8	138:17 163:12	330:12 333:4
238:2 239:2	354:24	fourth	283:23 314:21	genital
240:16 242:4	forms	3:13 84:15 210:3,5	364:7,10,13	86:13 87:11 88:3
244:9 246:12	154:5 175:3 180:7	fragments	future	88:20 119:1
248:3 249:3	180:17 235:18	168:21 169:1	16:10 249:24	170:12 185:8
250:10,20 252:7	240:24 241:13	fragrance		186:19 192:22
254:9 257:19	formula	63:7,13,15 72:23	G	194:6 200:11
258:14 259:10	280:15	73:6,16 74:22	gain	201:19 220:6
260:24 261:20	formulate	75:1 115:17 172:6	267:15,24	227:15,17 234:7
263:4,22 264:10	20:23 43:12 44:20	174:5 175:14,18	Galveston	244:3 246:3 252:3
266:10 267:4,19	70:19	176:6 177:9,13,22	58:5	273:18 274:6
268:23 269:24	formulated	fragrances	gas	277:5
270:6 275:23	97:4 101:24 106:7	174:10 175:23	145:13,14	genitals
276:9,17 277:10	formulating	177:19	gasoline	273:14 274:2,15
278:24 284:24	45:14 46:4 71:10	frame	360:14,16,18,22	276:5
285:15 288:11	107:21 139:15	39:12	361:2	genotoxicity
290:13 293:19	205:18	framework	Gates	319:7
294:3,14 296:14	formulation	5:23 99:1,14	258:5,6,7,11	gentlemen
297:23 299:7	73:19	frankly	gauging	54:4 74:11
300:9 301:19	fornix	37:10	76:20	geological
302:20 303:6	301:24	FRCP	general	349:17
304:17 305:1	forth	364:11	16:7 28:10 40:12	geologist
307:15 309:15	16:14 19:7,17	free	40:24 41:15,16	61:2 115:15
310:7 313:24	54:15,16 76:21	99:8 113:3 164:6,9	42:15 55:19 75:24	George
316:11 317:8,17	81:7,18 155:22	289:19 292:15	79:8 82:6 92:23	79:20 337:5
317:24 318:9,20	200:7 220:16	frequency	97:20 100:5,14	George's
319:14,24 320:17	345:8 364:9	272:23 302:19	103:9 106:4	337:9

Gertie 257:12 258:9	339:9 340:13 343:13 359:9,19	133:4,13 185:6,13	gynecologists 208:13	harm 188:5
gestalt 348:24	goes 68:1 136:19 219:21	great 74:17 326:11	gynecology 32:15 208:6	harmful 355:2
getting 63:21 64:6 110:6 142:14 257:20	225:21 324:1,9 334:14 335:21 345:5	greater 137:8 153:4 154:22 166:22 168:8 196:10,22 198:2 198:11,17,20 212:22 250:16 255:11 262:19 263:13 311:17,19	H	hazard 97:19,19 143:19 153:4,6 172:22
gigabytes 346:14	going 11:10,20 39:21 73:24 74:19 85:21 86:22 87:22 112:5 117:24 136:11 156:3 162:23 164:16,19 176:17 176:18 192:4 233:16 247:6 284:3 285:18,22 288:2 289:6,14 294:9 295:8 309:22 315:7 321:19 324:18 342:11,13 343:4 343:14 344:9 363:18	greatly 296:16	habits 161:24 359:11,12	hazardous 326:9
Ginkgo 229:3		grilled 358:12,14	habitual 23:4,10,21 38:3 53:7,22 199:11	Hazards 77:17
girls 296:11		gross 214:11	half 86:22 111:19 176:22 184:19,20 327:22,23 335:9 351:7	he'll 164:21
give 12:3 54:4 64:4 135:23 156:3,8 188:5 230:3 316:13 336:18		groundwater 345:8	hallmark 300:14	head 188:22 304:8,24
given 11:4 18:10 20:3 23:1,6 56:14 164:12 188:14 266:21 336:22 367:5		group 39:3 80:19 178:15 178:16 189:20 226:3,16 227:1,6 227:9,12,16,18 229:11,18,19 235:8,12 237:4 249:20 250:24 261:12,15 263:6 285:13 290:23 292:18 309:12 357:7 358:16	Halme 183:23 184:3	healing 122:13
glass 316:23	Golkow 1:23 3:23 8:6		hand 159:19 192:8 195:18 247:6 289:6 337:7	health 5:15,22 30:14 31:12 58:7,24 61:9 63:15 65:8 77:18 79:18 89:15 89:21,22 90:24 93:5,6,10,19 94:3 94:7,18,20,22 95:21 96:4,10,16 96:21,24 97:3 98:13,15 99:1,2 99:13,17 100:9,15 137:17 205:9,23 207:3 237:18 239:8 344:14,15 344:16
gleaned 18:8	good 105:1 120:17 221:3 266:2 330:16 336:14 352:19	groups 6:11 190:10 263:2	hand-selected 75:10	health-related 93:21
glove 305:3		grow 359:3	handed 160:2 291:6	healthcare 93:24 204:8
gloves 133:20 134:9,16,17 189:22,23 190:9	GOSSETT 3:2	growth 115:2 139:1 287:3 287:14	handled 95:17	healthy 240:1
go 12:21 25:4 59:7 67:9 69:16 85:22 99:6,17 145:10 163:19 164:14 205:12 213:24 224:9 228:23,24 246:17 253:4 256:18 262:8,19 272:21 278:6 281:13 282:12 288:4 290:18 314:22 315:13 320:6 328:22	government 221:8	guess 65:16 205:23 339:18 354:2	handling 164:13	hear 142:13
	gradient 111:23 112:1	guiding 91:7	handwritten 6:2 281:23 337:14	heard 14:19 204:23
	graduate 281:1 344:14	gynecologic 60:12 338:4,9,12	happen 252:1	hearing 16:6,15 17:14
	Graham 5:13 29:2	gynecologist 60:18	happened 274:11 319:16	heavily 160:18
	grandfathered 335:3		happening 312:18	
	granuloma 120:11		happy 164:21 165:6,15 246:20 284:5	
	granulomas 116:16 119:3,12 120:5,18 132:24		hard 336:22	
			Harlow 255:7	

heavy 168:15 170:11 172:2 173:23 175:7,19 176:6 297:20 298:4 299:19 300:20 332:16	333:7 351:8 hit 282:15 hold 346:13 holidays 351:4 hope 68:7 hoping 251:23 Hopkins 70:1,2 148:12,17 149:10,24 150:8 158:2 Hopkins-28 7:4 148:17 149:10 150:1,8,18 151:10 152:2 158:3 hormone 255:10 268:15,18 269:4 hospital-based 238:14,19 239:15 239:21 240:12 246:7 hospitalized 239:23,24 hospitals 134:18 hour 45:11 86:22 176:22 hours 40:4 45:13,18 60:9 343:5,15 347:14 households 359:6 Houston 1:15,16 8:10 37:1 59:4 61:10 hover 310:20 huge 250:24 345:4 human 112:15 226:13 236:5 249:19	288:7 358:18 humans 178:16,17 179:3 225:9 226:4,8,17 227:1,22 235:14 288:19 292:19 hundred 306:23 357:24 hundreds 357:21 hydrocarbons 358:15 hygiene 76:21 257:4 284:19 288:7 hypothesis 132:2 193:21 hysterectomies 189:18 hysterectomy 189:20,21 190:2 193:2,20 194:8,19 196:13 197:1,18 198:5	205:6 206:3 idea 73:4 169:17 identified 34:8 52:22 70:23 127:11 128:4,9 151:9 163:16 286:6 300:21,22 324:22 333:3,11 336:5 346:22 355:13 356:16,20 361:7 identifies 86:11 88:1,18 319:2 330:13 identify 8:15 71:15 86:10 87:7,8 172:21 220:10 289:15 299:20 330:14 Identifying 99:2 Igor 282:18 ill 240:1 illness 134:2 illustrative 216:22 Imerys 3:5,10 9:6,8 69:19 70:10 72:3 75:8 75:16,23 147:19 149:13 157:23 158:5 284:13 Imerys' 150:23 immediately 40:17 65:14 immune 287:3,14 immunogenic 81:19 114:17 impact 209:16 271:20 imperative	365:14 implanted 286:23 important 18:9,15 94:1 159:13 209:20 254:21 258:11,15 283:22 295:16 317:4 338:16 339:1 352:18 impossible 266:19 improvements 167:18 impurities 169:14 in-person 46:9 inability 162:10 163:13 251:12 inappropriate 166:16 inasmuch 184:11 incidence 131:3,14,22 191:7 191:16 194:17 196:14 197:17 280:3 inclined 304:8 include 45:19 67:2,22 82:24 101:20 146:5 191:17 237:1 257:12 272:8 332:24 344:18 345:17 355:15 included 24:17 66:24 67:6 67:13 152:3 158:8 169:14 195:9 214:19 217:4 226:2 258:8 295:22 309:12
--	---	---	--	---

347:3 357:17 includes 87:14 280:12 347:4 355:22 including 19:6 41:2,2 83:12 93:6 114:22 121:7 163:23 165:21 169:6 193:23 221:21 237:2 245:8 252:15 277:17 278:21 279:5 287:2 303:9 321:22,23 358:10 inclusion 41:8 income 56:2 incorporated 151:20 180:11 214:17 244:24 337:7 incorrect 105:14 incorrectly 290:15 increase 121:21 202:18,23 231:3 233:17 275:14 299:12 306:12,13 318:6 318:13 331:3 338:13 360:10 361:16 increased 84:18 91:21 121:14 122:8 131:3 152:19 211:5 220:7 232:13 236:4 262:6 277:7 306:15 308:13 309:13 310:5 333:6 increases 132:23 133:3 236:24 237:3 311:13,16 338:21	incur 361:13 independent 53:6 79:4 157:5,10 158:9,14 INDEX 4:1 indicate 135:1,19 154:18 220:12 indicated 241:8 327:16 individual 71:22 110:17 126:20 171:24 178:4,5 193:5 214:22 229:21 308:17,19,20,21 308:23 309:3 310:19 314:13 330:8 345:21 industrial 76:20 156:15 344:22 industries 76:2 industry 331:15 inert 303:1 339:4 infection 122:12 267:8,23 infections 202:14 infer 166:13 inflammation 86:8,11 87:9 88:2 88:11,19 114:18 116:1,7,10,16 117:4 119:2,11,20 122:11,15,16 123:13 125:4 126:23 127:9 131:18,21 132:14 132:23 133:3,11 134:21 136:18,23	137:3 138:12 198:21,23 200:10 248:13 249:21 279:14 283:20 287:1,11,12,18 inflammatory 115:1,6,11 119:20 120:10 121:3,6,10 121:12,19 122:4 122:17,21 123:8 126:15 127:12,19 127:20 128:1,12 138:24 171:18 287:2,14 313:15 362:17,18 influence 213:11 272:1 279:23 influenced 216:21 272:15 313:16 inform 350:23 information 16:17,21 18:8 19:10 20:22 42:2 42:4,23 70:18 78:5 149:17 155:23 156:1 166:13 173:24 174:3,8 205:12 232:21 243:10 244:13 267:13 281:4,12 282:7 298:3,10,12,15 312:6 325:20,23 326:2 348:1,17 349:3,7,10 ingredients 140:8 inhalation 82:3,15,23 83:6 134:12 181:15,19 181:22 182:2,17 inhale 361:2 inhaled	84:7 182:9 290:21 initial 37:23 198:14 237:14 initially 40:11 initiation 116:13 injected 186:7 injury 57:6 134:2 innocent 329:24 inquiries 350:21 inquiry 351:14 inserted 304:22 insofar 235:24 instance 74:2 instances 76:12 instilled 301:23 Institute 90:21,23 91:7,12 91:19 93:8,14 95:11,18 234:21 institution 58:10 instructed 350:9 INSTRUCTIONS 365:1 insufficient 166:13 247:21 248:22 250:5 288:18 insult 312:12 insults 312:17 intend	16:5 22:21 96:23 97:2 156:8 intended 15:10 intense 311:21 intensifies 138:17 intensify 114:24 115:5,8,11 138:24 intention 156:10 intentionally 115:21 interaction 196:21 197:12 198:1 interest 37:6 105:5 342:8 349:9 interested 39:21 295:13 341:22 364:15 interesting 43:1 80:24 342:13 348:18 349:3 interests 93:12 internal 75:7,15 76:6,8,12 76:19 77:1 88:9 88:13 321:14,15 321:20 International 178:22 225:23 Internet 338:7 342:21,24 interpretation 223:18 334:10 interpreting 264:20 interrupt 74:11 86:21 191:5 interval 261:23 276:21 intervals
---	---	---	---	--

126:10 interview 272:16 277:17 interviewed 273:17 274:1,8,13 intimately 120:11 intrinsic 83:19,23 84:9 208:8,11,16 209:3 337:17 362:11,15 introduced 188:8 284:12 introductions 343:21 invasion 212:23 inverted 188:21 investigate 150:16 investigated 104:20 investigation 79:5 286:15 329:2 329:7 investigations 193:6 214:23 Investigators 251:22 invoice 14:10 invoices 14:9 45:3,7 involve 147:2 187:22 189:8 250:21 involved 37:3 47:10 50:3 54:24 56:23 57:3 57:6 62:8,17 63:21 64:7 73:9 76:15 96:16 135:20 136:5 138:4,10 141:6,13 142:14 147:15 148:7 156:20,21	184:8 185:18 187:19 189:12 232:10 250:16,22 267:1,9 287:4,15 340:4 involves 172:15 359:4 involving 57:16 ions 180:10 irrefutable 226:13 irrelevant 349:15 isolated 254:15 issue 66:14 80:12 90:11 118:5 141:20 144:8,20 160:4,11 163:7 176:7 199:19 213:13 264:19 278:17 289:1,2 327:16 352:18 358:20 issues 29:7 41:8,20 55:7 64:18 77:18 80:20 137:16 207:3 258:17 285:6 326:6 Italian 297:11 Italy 146:12 item 14:5 35:4,5 126:18 items 13:21 20:6,14 35:1 357:17 <hr/> J <hr/> J&J 152:3 155:8 J.D.P 29:2	Jane 3:2 9:5 284:10 January 1:11 5:2 8:2,7 26:1 26:10 94:9,14 364:23 jbockus@dykem... 3:3 jdonath@coughl... 3:8 Jersey 1:1 3:9 Jim 77:7 jive 116:24 job 53:6 164:22,23 336:14 John 70:1,2 148:12 Johnson 1:3,3 2:16,16,22,22 9:1,1,4,4 22:4,5,7 22:7 41:22,23 43:9,9 70:3,4 72:4 72:4 73:7,8 75:8,8 75:16,16,22,22 129:19 143:23,23 147:20,20 149:13 149:13 150:22,22 151:12,12 299:4,4 join 234:3 236:10 joinery 229:13 Jonathan 3:7 9:7 journal 27:14,16,21 31:14 32:14 249:13 journals 63:4 103:11 Julie 70:8,9 148:12 jumped 275:20	jumping 285:19 <hr/> K <hr/> kaolin 129:13 130:24 Katherine 2:19 9:2 katherine.mcbet... 2:20 keep 110:6 Kemble 3:8 key 20:5 kibitzed 297:16 kill 311:3 kind 24:7 38:11 42:6 84:5 278:14 293:10 299:9 300:12 323:20 329:21 342:8 kinds 285:6 312:17 335:9 335:11 Klevorn 2:8 8:22,22 know 10:10 28:16 29:12 36:23 42:20 44:6 44:19 46:18 47:16 48:10,13,16,18,19 49:7,10 51:6 66:11 68:2 69:20 72:11 73:15 74:3 74:7,24 75:20 80:7 94:14 96:7 96:12 101:15 103:8,12,15,20 104:2,5,18 105:4 105:6,10,13,13,19 105:21 134:5 141:1 142:9 146:3	148:24 149:3,17 151:8,23 153:8,12 155:2 161:9 171:6 171:12,16,23 176:5,11 177:12 177:15,16,17,18 177:20 178:1 180:7,17,23 184:17 189:4 204:11 208:21 213:5 218:11 221:2 246:13,16 275:16 282:5 291:4 292:11,13 293:13 294:10 299:23 300:1,10 300:17 302:7,12 302:16 303:13,13 303:14 311:20 312:3 315:2 319:6 320:1,3 322:3 324:16 329:8 330:6 331:8,9 333:9,13,16 336:8 337:20 338:11,17 338:19,23 339:13 340:20,20 344:6 346:12 347:4 357:13 358:13 knowingly 350:2 knowledge 104:11 120:1 156:2 169:11 224:7 293:23 303:24 322:4 359:8 knowledgeable 168:21 known 129:9 135:17 166:18 171:2,3 178:21 226:21 266:20 280:3 315:18,19 330:14 333:5 358:15 <hr/> L <hr/>
--	---	--	---	--

labeled 183:17	190:1	2:3	limitations 158:18,24 160:9	listing 5:7 125:17 126:8
labeling 30:22 134:4 219:10	lattice 180:11	length 137:8 339:10	limited 87:15 160:11	lists 24:18 73:2 226:16
labia 200:19	law 334:13	lesser 190:20	227:21 228:3	literature 5:7 19:4,7,12,22
laboratory 286:24	lawsuit 142:14 271:20	let's 26:22 31:4 89:1	235:13 290:8	20:17 21:14,20,23
lack 107:12 110:11	276:2	225:12 237:21	291:7,10 292:19	24:16,23 25:8,13
208:8 222:20	lawsuits 68:2 272:1,13	253:4 256:17	limiting 236:18	29:10,13,19 31:24
251:11 254:6	273:12 274:8,12	257:6 259:13	limits 223:8	31:24 32:24 33:12
lacking 222:16 223:10	274:19 275:5,9,18	270:10 314:22	line 46:8 313:9 366:2	33:13 34:14,20,23
224:13	277:3	letter 5:16 30:20,23	368:3	35:1,10 36:2,14
ladders 145:21	lawyer 36:24 80:4 285:13	33:18 218:14,21	lines 106:22 113:9	40:12,19,24 41:5
Lancet 28:24	LAWYER'S 4:13 368:1	219:20,21	link 158:19	41:10,19 42:12
Langseth 6:14 246:23 247:13	lawyers 39:16 44:7,9,11	level 20:19 109:22	liquid 187:14	43:7,8,16 45:14
247:18 248:17	46:2,21,24 75:11	111:20 171:24	list 6:2 13:16,19,22	46:5 51:5,19
language 92:6,7 134:6	lays 117:4	217:2 238:13	17:23 18:5,7,18	52:17 54:9,13
294:11	leach 189:3	245:15 263:13	19:17 21:14,20,23	62:22 65:13 66:18
languages 214:19	lead 27:5 121:3,8	325:8 355:1	24:22,24 25:8	67:3,6,14 68:10
large 241:16 251:19	224:13 333:19	levels 170:11	29:10,13,19 32:24	71:6 79:6 85:17
324:8 334:3	leading 90:24 116:15	LHG 1:5	34:14,18,23 35:1	85:23 87:18 94:16
largely 232:16	leads 70:18 116:8,12	LIABILITY 1:5	35:11,15,18 36:15	94:21 95:11
larger 19:6 22:18 39:3	122:12	licensure 328:15	51:19 58:15 67:20	101:22 110:20
153:4	learn 96:9	lifestyles 359:13	68:10 71:6 90:12	116:15 130:13
lasts 335:17	leave 129:2 257:17	ligation 190:13,14,19,23	90:17 101:21,22	157:22 158:6
late 40:6 65:21 333:1	lecture 42:2	191:4,17 193:1,20	123:12,18,22,23	175:1 178:11
333:12	left 13:13 177:7 257:15	194:8,19 196:13	124:1,6,12,13,15	213:1 214:3,14
latency 168:7 279:16,24	legally 68:1	196:24 197:18	126:13 130:13	215:24 217:4,20
280:1,7,12,14,18	legs 186:3 187:3 188:22	198:4	133:9,16 143:13	218:7 220:11,14
280:21,24 281:3,7	Leigh 2:2 8:17	light 162:1	145:10 146:22	221:15 222:6
281:21 282:14,19	leigh.odell@beas...	likelihood 211:22 240:22	154:18 178:11	223:14 224:21
311:23		limb 224:9	217:20 281:13,18	230:22 237:22
Latin		limit 135:11	282:5,23 283:6	267:2 282:23
		limitation 162:9 163:12,17	304:1,3 347:1	347:2 348:2
			listed 13:15 20:15 35:10	lithotomy 185:23 187:2
			51:18 52:16 68:9	litigation 1:5,23 3:23 8:6,11
			125:9,13 143:2	10:8,12 23:2,8
			155:4 222:10	36:18 37:4 39:17
			227:17 345:22	46:22 48:5,15,21
				49:8 52:5,9,13
				55:1 56:15 63:22
				64:7 66:5 73:9
				75:22 80:6 97:5
				100:11 104:22,24
				105:12 118:1,13

142:15 178:3 181:5 218:8 224:5 284:13 351:18 361:22 litigations 56:24 57:2 little 68:6 256:18 296:20 305:5 327:22 359:10 360:23 lives 233:22 236:5 305:17 306:18 325:14 358:5 359:12 LLC 3:15,15 9:13,14 LLP 2:8,13,19 3:7,12,17 locate 199:3 located 314:13 location 294:7 Lockey 77:7 Logan 2:20 logistic 272:18 277:18 London 145:21 long 39:10 168:8,9 169:22 241:16 280:18 281:17 335:6,14,17 long-term 129:12 longer 58:23 59:9,12,15 209:7 310:13 339:5,15 358:1 362:19 Longo 5:9 25:22,24 49:16	49:22 142:4 143:1 157:20 340:4,15 Longo's 50:11 142:1,18 look 31:18 42:20,21 71:22 72:13 78:18 93:1 94:2 106:22 110:19 111:14 113:6,8 118:10,12 130:1 155:3 161:24 162:23 175:6,13 184:11 191:19 193:16 199:11 204:24 219:24 220:15 229:1 233:19 237:21 238:11 242:23 243:23 246:19 247:7 248:14 257:6,14 259:13 260:16 262:2,14 270:10 272:6 274:11 285:21 287:24 289:16 292:15,17 293:16 295:11 299:22 301:14 306:11 328:23 336:7 337:13 looked 41:20,22,24 42:1 69:2 72:2 88:8 89:20 107:20 129:24 130:8,22 131:8 142:10 143:12 155:24 159:18 163:6 165:17 183:12 184:10,11,15 191:15 196:9 214:2,3 245:23 252:24 271:19 300:12 338:7,24 looking 28:18 53:21 67:8 77:6,8 78:9 99:19	118:4 125:23 126:12,17 139:24 140:1 148:16 152:1 158:1 162:19 164:3 166:1 194:4 197:11 222:24 247:24 248:16 255:6 259:24 273:11 282:22 283:2,7 287:8,11 289:23 292:22 293:7 297:3 300:18 320:8 321:7 352:23 357:10 looks 134:6 160:3 291:24 Los 2:15 lost 290:16 296:16 340:9 lot 40:22 117:1 137:16 141:18 146:21 207:7 239:5 299:23 343:11 349:16,21 359:4 lots 93:10 319:9 Louis 3:14 Louisiana 2:10 low 153:5 334:4 low-grade 212:19 lower 197:16 223:8 269:4 334:5 356:11,12 lubricant 134:9 lubricating 133:20 lucky	282:15 lung 130:9 131:3 292:5 lungs 84:6 182:18 <hr/> M <hr/> M 2:3 3:12 M.D 1:14 4:5 5:1 9:18 59:24 364:5 367:4 367:12 magnesium 180:12 magnitude 166:6 211:20 main 134:8 major 160:11 majority 57:9 109:19 137:10 245:12 326:12,17 326:22 327:2 362:23 making 54:17 216:23 330:17 336:9 mammalian 288:20,23 Managing 99:2 Mantovani 127:5 manufactured 22:4,6 146:12 manufacturers 145:14 manufactures 60:15 manuscript 101:1,4 102:18 103:4 Margaret 2:3 8:19 margaret.thomp...	2:4 mark 10:16 15:17 20:24 25:23 26:10,22 30:13 31:4 32:6 32:18 36:5 124:15 130:2 159:20 163:2 192:2 195:21 218:16 225:12 247:2 marked 10:19 12:11 15:19 21:4,11 24:24 26:3,7,20 27:6 28:13 29:15 30:17 31:6 32:9,20 34:14 36:8,12 43:14 50:18 54:21 57:19 58:21 65:1 65:11 89:16,17 94:24 98:22 100:20 102:4,15 124:18 130:4 146:23 159:22 160:3 163:4 192:12 195:24 218:15 225:16 243:2 247:9 271:2 289:7,10 293:1 market 140:21 MARKETING 1:4 married 331:16 Marriott 1:14 Marysville 76:17 mask 145:13 masks 145:14 mass 334:13 362:14 Master 344:15
---	--	---	--	---

material 28:12 62:3 78:7 151:19 229:8 279:8 304:19,22 312:13 314:15 342:19 361:10	135:6 150:21 153:5 157:10 179:1 180:18 236:8 254:2 264:11 270:7 320:20 325:2 336:15	medicine 55:15 58:9,10 60:4 60:7 79:22 80:18	meta-analyses 61:15 125:13 215:22	mid 39:13
materials 5:21 6:3 13:11,16 13:18,22 14:2,24 15:8 18:19 19:13 19:14,16 20:17 24:1,3,14,20 25:10,12 28:5 29:6,24 30:1 35:10,15,17 42:8 42:24 43:10 77:4 91:4 123:20 157:24 175:22 279:9 282:5 301:9 301:15,22 311:15 311:16 321:11 347:24	meaning 262:2 273:13,24 288:18 297:17 360:16	meet 39:2 45:24	meta-analysis 27:1,3 61:14 94:23 191:20 192:15 193:8 194:5 195:3 195:9 215:13,18 215:20 216:5 242:19,20 243:7 256:4 257:9 268:14,20	middle 38:18 165:24
mathematical 280:15	meaningful 252:9	meeting 38:13 39:5,18 40:8 45:22 48:4	metal 77:18 169:13 172:2 173:23 180:10	midst 221:7
matter 8:10 15:22 16:6,12 16:15 17:15 34:11 44:21 45:6 46:19 47:1 49:5 51:22 55:2 80:10 86:4 89:13,14 96:14 106:7 141:3 149:1 172:12 187:20 209:7 215:9 217:24 219:6 303:8 345:9	means 23:12 111:6 186:2 227:22 228:10 231:7,8,24 362:10	member 239:6 335:4	metals 114:23 169:6,18 170:12 174:2 175:8,19 176:1,6 177:8,13,18,21 180:3 181:1,1 299:19,24 300:21	migrate 182:10 183:13 302:18
matters 37:7 86:1 100:11	meant 258:4	members 38:14 129:18	metastasis 212:23	migrates 85:13 198:9 206:10
Mayo 90:16	measured 314:11 340:8 341:21	membrane 323:10,13	method 143:17	migrating 206:5
McBETH 2:19 9:2,2	measurements 232:6	memory 71:23 126:19 183:15 276:6	methodology 40:10 214:2 215:4 215:6,10 239:19 244:19,24 251:4 254:5 264:15 294:24 295:14 330:6	migration 82:3 83:5 88:10 125:22 181:15 186:23 187:5 190:15,24 194:15 197:15 203:7 204:14,15 205:6 206:5,21 337:24 338:1 362:3
MDL 1:4 8:11 10:8 55:2	measures 241:10	men 160:16 350:19	metastasis 212:23	Mike 9:16 86:20
mean 18:4 22:15 39:23 40:1 62:14 88:16	meats 358:13,14	menarche 333:1,12	method 143:17	milieu 279:11 362:18
	mechanism 224:12 248:11 249:20 279:3 299:23 300:2 314:19 333:23	menopause 333:1,12	metastasis 212:23	Miller 1:17 9:16 364:2,18
	mechanisms 126:22 135:11 303:22 312:14	menstruation 183:23 184:3	metastasis 212:23	milling 155:9 156:4,9,14 156:18,20,24
	mechanistic 326:6	mention 109:19 256:6	metastasis 212:23	mind 81:11 165:9 192:6 281:14 296:22 351:23 358:21
	media 278:13,15	mentioned 49:23 51:5 104:8,9 105:16 252:23 345:24 362:4	metastasis 212:23	mindful 265:12
	medical 1:15 10:5 58:5,6,13 58:24 59:10 90:17 175:1 207:19 220:22 330:7 334:24 335:2,5 350:6	mentioning 255:22 350:14	metastasis 212:23	mine 218:3 346:8
		merged 58:17	metastasis 212:23	mineral 114:22 115:5,10 132:21 138:23 180:11 345:21
		mesothelioma 32:16 131:4 161:19 166:23 167:4 182:22	metastasis 212:23	mineralogist 61:3
		mesotheliomas 167:7,9	metastasis 212:23	minerals 64:16,20 344:19,23
		met 46:3 47:13 48:2,23 142:7	metastasis 212:23	

345:22 mines 155:17 156:4,9 minimis 325:8 minimum 309:9 mining 41:21 77:19 155:10 156:4,8,14,17,20 156:24 minor 103:6 minute 164:1 292:15 315:23 320:8 335:9 minutes 235:12 335:17 misclassification 161:23 166:16 241:13 misclassified 167:8 misleading 77:24 missed 271:11 missing 291:15 misspoke 258:4 361:23 misstates 19:20 65:24 128:23 239:2 296:1 332:19 MO 3:14 mode 272:23 Model 282:20 modeled 340:5 modeling 232:8 340:13 341:13	models 232:5 272:18 277:18 293:15 modest 233:2,19 modified 16:20,22 28:24 Mohamed 27:5 molecular 334:16 moment 16:2 56:6,6 68:13 113:15 116:4 155:3 183:16 234:18 280:6 281:14,16 282:4 290:17 291:13 315:1 Monferrato 146:11 monograph 6:18 176:14 178:10 203:13,21 204:21 205:11 289:12,17 289:24 291:12,16 291:18,22 292:13 294:10 295:17 monographs 28:7 178:11 Montgomery 2:5 month 309:9 324:13 350:11 351:2 months 23:19 45:6 261:13 261:14 morning 284:12 Morristown 3:9 motile 303:14 motility 303:19,23 motion	334:15 Mount 3:8 mounts 111:2 233:14 move 121:15 140:17 162:8 176:18 192:5 205:14 236:8 241:21 324:12 334:17,17 359:14 moved 227:5 324:2 movement 362:19 moving 323:21 362:5 multiple 68:2 119:19 214:19 multiply 299:16 multiplying 212:14 310:16 mutagenic 313:17 mutagenicity 319:8 mutation 120:13 312:16 313:22 318:18 mutations 314:17 333:5 <hr/> N <hr/> N 2:1 3:1 N.W 3:18 Nadler 282:18 name 8:4 9:23 88:18 123:16 284:10 343:21 named 36:22	names 342:3 narrow 359:22 national 90:21,23 91:6,7,12 91:18 93:7,14 95:10,18 178:24 234:21 natural 170:1 280:4 312:20 naturally 170:3 nature 140:16 305:4 317:5 NCI 92:23 94:6,21 NCI's 94:8 NCRA 364:19,20 necessarily 93:16 135:9 171:3 172:19 173:2,9 213:16 218:3 239:3 254:18 255:20 361:17 362:14 necessary 19:11 20:4 78:18 79:2 173:12,16,17 231:13 349:21 365:4 need 29:21 41:14 45:17 54:5 57:24 58:1 93:1 99:21 113:4 163:24 164:8,14 173:5 192:9 213:21 234:1 241:1 253:5 258:1 265:12 282:3 291:11 292:14 295:11 309:11 314:23 316:2 325:23 326:1,1,5 333:23	needed 249:6 needs 98:1 164:19 308:11 negative 72:20 187:14 245:18 316:8 neither 364:13,14 Ness 79:23,24 80:8 117:9,10,12 127:1 136:14 335:7,16 Ness' 117:3 never 60:14 62:8,17,21 63:6,12 64:9,12 64:20 80:8 111:21 118:15,18 138:4 182:8 216:5 308:16 326:13,18 333:1,11 new 1:1 2:10 3:9 17:12 25:5,10 119:15 220:10,11 266:24 267:13,16 306:3,8 307:16 nice 263:23 325:11,17 Nicholson 70:6 129:20 nickel 169:7,12,24 171:8 172:1 173:23 180:8,19 night 29:20 33:7 nine 143:15 297:8 NIOSH 76:16 non-coffee 265:22 nonfibrous 313:16
--	---	--	---	--

Nonmetallic 77:19	283:3	67:24	168:17 170:14,23	295:6,24 296:13
nonobese 331:5	NSAID 131:12 132:5		171:9 172:7,17	296:22 297:22
nonoccupational 161:13 162:11 163:14	NSAIDs 131:19	O	173:4 174:7,14	299:6 300:8
nonresponsive 121:16 140:18 205:15 234:2 236:8 241:22 359:15	nucleotide 314:14	O'Dell 2:2 8:17,17 10:22	175:9,16 176:17	301:18 302:20
nonsignificant 261:22	number 5:3 7:2 45:6,13 46:6 49:10 57:5 71:18 86:16 90:16 93:9 95:14 111:24 114:13 124:20 125:5,17 146:14 147:23 155:5 159:5,9 160:15,15 183:5 191:14 208:22 212:16 215:21 217:9 220:20 221:17 223:13 224:11 227:3 228:4 233:19 245:18 250:16 251:23 255:16 258:21 259:4 273:4 278:11 279:22 280:1 305:14 306:3,5 307:16,22 309:9 314:11 326:23 328:10,12 328:13 331:14 342:6 354:12 357:13	11:22 13:3,9 14:20 15:5 17:20 18:22 19:19 20:9 20:12 21:17 25:2 37:15 38:6 46:10 46:13 53:9 54:1,7 55:13 59:2 60:22 62:11 63:8,23 65:23 67:9,17 70:15 71:17 73:10 73:22,23 74:2,6 74:14 75:12 78:1 78:12,22 80:15 81:12,22 82:17 84:1,20 85:14 86:14,20 87:5,12 88:5,22 91:23 92:3,5,11,17 94:11 95:3 97:8 98:3 99:8 106:16 107:14 108:10 109:16 110:14 111:16 112:22 113:2,3 114:6 116:19 119:5 120:8,20 123:10 127:14 128:6,18 128:22 130:6 131:24 133:6 136:7 137:21 139:22 140:23 141:23 143:10 144:1,22 147:4,17 148:23 149:22 150:6 151:3,14 152:5 153:1,14 154:3 155:11,19 157:1,8 158:12,21 159:6,23 161:5 162:14 163:24 164:5,15 165:4,9 167:16,24 168:3	176:21 178:4 179:4,23 181:8 182:3 184:21 185:10 186:12 188:10 189:14 193:10 194:21 195:5 196:2 197:3 197:20 198:15 199:16 200:2 201:9 202:8 203:9 203:19 204:17 207:4,10,14 209:10,18 210:14 212:2 214:9 216:12 218:9 219:16 220:24 222:8,22 223:15 223:24 224:22 226:9 228:1,14 229:6,14 231:20 232:18 233:3,10 234:9,16 235:6 236:2,11,20 237:10 238:1 239:1 240:15 242:4,10 243:4,14 243:17 244:8 246:11 248:2 249:2 250:9,19 252:6 254:8 257:18 258:1,13 259:9 260:23 261:19 263:3,21 264:9 267:3,18 268:22 269:23 270:5 275:22 276:8,16 277:9 278:23 282:3 284:23 285:14 288:10 289:11,14 289:19 290:12 291:9,17 292:14 293:19 294:3,13	303:5 304:16 305:1 307:14 309:14 310:6 313:23 314:23 315:9,22 316:10 317:7,17,23 318:8 318:19 319:13,23 320:16,22 322:18 324:4,14,24 325:9 326:20 329:12 330:10 332:18 340:18 341:18 343:3,9,12 345:18 348:21 351:19 352:15 353:6,19 354:19 355:8,17 355:21 356:7 360:6 361:15 363:5,13
normally 281:2	numbered 21:22,22			O.M 76:16
Notary 1:21 364:4,21 367:20	numbers 71:20 194:13 241:16 331:6,9 332:6			o0o-- 7:9 363:23
noted 222:13,15 283:20 365:11 367:7	Nurses' 237:15,18 258:5			oath 24:19 122:20 152:14 173:15
notes 4:13 42:1 43:17 92:16 124:20,21 124:22 125:14 126:18,19 183:19 222:19 255:7 281:23 337:6,10 337:14 368:1	Nursing 59:5			OB/GYN 207:20
notice 5:4 10:15 11:1 12:10,19 13:10 14:6 15:1 23:24	nuts			obese 331:4
notion 296:6 308:4				obesity 267:20 330:22 332:15
November 65:22 89:12 227:5				object 11:22 17:20 19:19 37:15 38:6 53:9 54:1,5 55:13 60:22 62:11 63:8 63:23 65:23 70:15 73:10 75:12 78:1 78:12,22 80:15 81:12 82:17 84:1 84:20 85:14 86:14
Ns				

88:5 92:17 94:11	263:3,21 264:9	observed	64:7 65:21 66:1	291:15,20,21,22
95:3 97:8 98:3	267:3,18 268:22	156:22 187:12	142:15	295:3,16 296:5
107:14 108:10	269:23 270:5	213:15 283:12	odds	297:1 299:11
109:16 111:16	275:22 276:8,16	Obstetrics	126:9 232:14 233:1	300:20 305:23
114:6 116:19	277:9 278:23	32:15	245:13 255:9	307:19 309:21
119:5 120:8,20	284:23 285:14	obtain	259:1 261:22	316:4 320:14
123:10 127:14	288:10 290:12	101:3	263:7,9,12 269:2	323:2 332:12,15
128:6,18,23	294:13,14 296:13	obtained	272:22 276:20	332:22 335:19
131:24 133:6	297:22 299:6	101:5 245:16	277:22 278:5	338:8 342:2 343:1
136:7 139:22	300:8 301:18	obvious	310:21 331:24	343:12,16 344:6
140:23 141:23	303:5 304:16	110:22	332:4 333:9,14,17	360:14 361:20
144:1 147:4 151:3	307:14 309:14	obviously	offer	362:2 363:1,5
153:1,14 154:3	310:6 313:23	303:22	16:5 22:21 336:10	old
155:11,19 157:8	315:18 316:10	occasions	offered	42:1
158:12,21 159:6	317:7,23 318:8,19	11:7 55:5 56:11	171:12	older
161:5 162:14	319:13,23 320:16	occupation	offhand	29:4
167:24 168:3	320:22 322:18	229:19	333:13	once
170:14,23 172:7	324:14,24 325:9	occupational	office	72:2 339:11 362:16
172:17 174:14	326:20 330:10	55:15,18 57:7,10	335:21,22	oncologist
175:9,16 179:4	340:18 341:18	60:7 79:22 80:18	official	60:19
181:8 182:3	345:18 351:19	146:19 160:18	70:2	oncologists
184:21 185:10	352:15	161:1,15 163:7	offset	208:17 338:12
186:12 188:10	objection	166:14 168:15	358:4	oncology
189:14 193:10	18:22 25:2 59:2	229:12 297:20	offsets	338:9
194:21 195:5	87:12 88:22	298:5,9	299:14	one-half
197:3,20 199:16	106:16 110:14	occur	Oh	60:6
200:2 201:9 202:8	137:21 143:10	103:6 162:4 301:11	66:9 180:21 192:7	ones
203:9,19 204:17	144:22 147:17	306:6	197:12	68:3 75:17 102:5
207:4 209:10,18	148:23 151:14	occurred	Ohio	109:21 206:1
210:14 212:2	152:5 157:1	149:21 194:7 274:7	76:17	258:16 342:16,16
214:9 216:12	167:16 168:17	312:16	Okada	ongoing
218:9 219:16	171:9,15 174:7	occurrence	127:3 287:5,8,10	198:24
220:24 222:8	179:23 198:15	17:3 111:1 119:21	287:22	open
223:15,24 224:22	228:14 229:14	121:11 126:23	okay	206:23,24
226:9 228:1 229:6	234:9 242:10	136:16 230:12	17:23 20:12 25:22	operate
231:20 232:18	291:9 293:19	331:1	39:9 44:5 63:4	278:13
233:3,10 234:2,16	294:3 295:24	occurrences	65:3 74:5 92:3	operates
235:6 236:2,3,7	302:20 305:1	312:20	100:23 113:3	97:22
236:20 237:10	317:17 324:4,5	occurring	123:18 124:15	operating
238:1 239:1	332:18,19 348:21	171:19	130:15 138:15	134:19
240:15 242:4	353:6,19 354:19	occurs	149:9 150:11	operative
244:8 246:11	355:8,17,21 356:7	199:1 292:12	165:14 192:4,21	69:19
248:2 249:2 250:9	360:6 361:15	308:15	197:10 207:14	opine
250:19 252:6	objections	October	247:10 258:2	23:7 120:18 137:24
254:8 257:18	10:24 164:24 165:2	36:19 37:13,18	259:17 270:24	opined
258:13 259:9	observational	38:18 39:5,13	282:15 285:18	150:24
260:23 261:19	266:9,12,15	40:6,6,8 59:14	286:16,21 287:22	opining

82:14 108:3 122:20 opinion 43:4 74:20 81:18 81:24 82:5,7,9,10 83:1,10,14,15,16 84:15 86:7 88:12 92:23 107:21 114:12 115:15 116:6,9 123:2 141:3 144:6 148:13 156:4 169:10 171:17 181:5,12 206:14 208:7 210:5,12 211:7,10 259:20 301:24 302:3,8,10 303:12 305:16 308:10 310:9 311:10,24 346:18 352:12 353:3,7,10 353:20 354:24 355:10 356:3,5,15 357:9 359:22 360:4 361:12 opinions 16:5,8,9,12,13,20 16:23,24 17:6,9 17:13,17 18:9,20 19:9,21 20:23 22:21 34:10 38:12 39:22 41:13 43:13 44:17,17,21 45:15 46:4 54:15,19 57:5 63:19 64:1 70:19 71:10 79:1 79:5,12 80:14,23 81:2,3,4,7,16 82:22 84:24 85:22 89:14 95:8 117:18 123:3 139:3,15 156:8 196:6 215:9 217:8,11,15,18,21 217:24 218:2 219:6 235:16,21 236:19,22 271:17 285:9,10 349:2,11	349:13 350:23 353:15,24 opportunity 16:11 352:5 Oppose 236:11 opposed 308:16 344:23 opposite 335:22 oranges 254:19,19 order 76:21 92:24 98:2 100:13 173:10 213:11 241:17 250:23 256:21 307:3,6 334:5 346:13 organization 93:20 organizations 93:6,11,24 94:7 279:24 organs 198:21 original 193:6 316:3 365:15 Orleans 2:10 ounce 100:7 outliers 245:21 outline 285:20 outlined 105:7 215:11 outset 84:23 outside 48:14 97:5 104:22 304:13 ovarian 17:3,8 23:5 27:4 30:4 32:1,16 38:4 38:20 41:2,12,15	41:24 53:8,23 55:9 62:10,18 63:1 66:13 84:17 85:3,6 89:23 90:8 90:13,18 91:14,22 95:12 106:3,11,14 106:15,19 107:5 108:5 109:4 111:1 111:15 112:3 113:23 116:8 119:22 120:6,13 120:19,23 121:22 121:24 122:8,18 122:22 123:8,14 125:1 126:1,16,24 127:7,13 128:2,13 131:14,18,22 132:7,12 133:12 135:21 136:5,16 136:24 138:7,8,13 139:8,11 140:3 145:9,12 152:12 152:16,19 153:10 153:12,17,21 154:1,13,17,23 155:1,6 158:19 159:4,10 160:5 161:19 162:12 163:8,14 166:14 167:8,22 168:6,8 191:2,16 192:23 194:18 196:11 197:17 210:8 211:4,5 216:10 220:6,7 221:21,24 223:8 224:13,15 224:17 230:12,23 231:3 234:7 235:4 235:18,20 237:1,9 237:24 238:8,16 244:4 245:4 246:4 246:10 247:23 248:10,24 249:8 249:17 250:7 252:4 255:4 256:22 260:21 267:1,9,17 268:5	268:19 269:19,21 270:18 272:24 273:5,9,13,21,24 274:7,14,20 275:4 275:10,19 276:4,6 277:7 279:17 280:8,13,22 281:7 281:22 282:14 284:20 288:23 289:2 292:4 296:8 306:3,5,8 307:7 307:12 308:12 309:13 310:4 313:12 314:6 315:20 316:16 326:14,17 330:3,9 330:23 331:1,4,11 331:18 332:23 333:20 338:14,21 344:11 349:24 350:3,5 351:12 352:21,22 353:5 354:11 355:3,7 ovaries 82:2,16 83:4,8,17 84:5 85:13 116:5 116:7,11 154:8 169:19,23 177:14 181:14 182:1,10 182:14 183:14 184:12 191:2 198:10 200:17 201:1 206:6,10,14 206:17 208:8 209:2,6,17,23 278:22 279:5 283:12 321:23 362:7 ovary 300:22 319:21 323:2,6,8,11 324:7 337:18,23 338:1 339:5,11,14 overall 110:20 217:11 230:24 292:2 overarching	293:11 295:14 oversees 219:14 oversight 70:4 95:19 oversimplification 214:12 Overstreet 3:23 8:5 overwhelmed 313:1,6 oxidative 134:21,24 135:5,7 135:12,15,19,23 136:2,4,15,19,22 137:15,17,20,24 138:6 198:24 199:7 200:10 oxygen 199:6 oxytocin 186:8 188:17 <hr/> P P 2:1,1,2 3:1,1 P-346 7:7 28:14 293:5 p.m 177:2,3 253:9,10 363:9,10,22 page 5:3 7:2 17:24 18:18 18:19 21:24 24:23 30:24 67:8,20 69:4,6,8,16 77:8,9 81:8,16,19 99:6 99:17 106:21 108:15 112:16 113:9 114:13,16 115:23 124:24 125:8,16,17,20,21 126:7,8 130:13 148:11,16 160:9 163:10,19 164:2 183:2 196:16 197:5 220:16
---	---	--	---	---

243:15,24 248:1 248:17 249:13 256:19,20 260:17 272:6,21 283:1,3 285:24 289:11,18 289:21,24 291:13 294:5 297:3,4 301:1 305:13 366:2 368:3 pages 21:23 68:9 71:5 124:21 193:16 210:12 367:5 paid 224:4,8 pancreatic 265:11,24 paper 27:6 84:12 89:17 95:6 100:16,17,19 101:15,21 104:3,6 104:10,16,19 105:22,23 106:1 106:22 108:8 111:11 112:7,11 112:13 113:2,21 114:11 117:20,21 126:21 127:2,4,4 127:18 129:22,24 136:11,14 155:3 159:16 160:2 161:6 162:17,20 162:21 163:1 164:8,19,20 165:18 245:23 246:23,23 247:13 249:21 259:13 280:10 282:19 314:24 315:10 316:3 320:7 335:7 335:8 336:11 338:2 339:7,13 361:24 362:1 papers 70:22 71:3 76:9 111:13 127:10,24 128:17 136:15	337:24 paragraph 163:11,21 166:4,5 244:1,2 248:14 272:7 286:1 288:4 297:5 301:3 321:6 321:9 parallel 245:1 Pardon 68:13 Parmley 5:19 32:17 parsing 133:9 part 12:15 27:17 31:15 38:23 41:10 46:3 49:4 52:23 82:22 86:3 90:9 103:5 104:13,23 105:16 105:22 123:3 126:11 144:10 149:14 157:19 173:13 174:21 180:12 195:9,16 215:10 219:1 223:22 228:18 231:24 279:11 291:4,16 314:19 318:2 319:1 336:15 341:10,13 345:10 347:6 358:18 parted 39:19 participants' 272:2 participated 207:21 350:7 particle 303:1 334:11 339:4 339:9,10 particles 182:14 184:5,12 185:22 186:11,23 187:22 188:2,7,23	189:3 190:4,9,10 209:16 283:11 303:16 334:15,20 355:16 356:16 357:10 361:7 362:5,9,16 particular 44:2 77:23 151:17 211:19 241:14 280:17 282:7 295:17 299:24 337:22 345:12 349:5 351:18 357:18 361:6 particularly 83:17 91:3 141:5 160:17 241:6 particulate 187:19 209:7 303:8 304:19,22 321:10 parties 364:14 parts 209:8 336:7 party 364:11 pass 284:2,3 passed 101:7 357:18 passes 303:20 passing 335:24 pat 69:17,18 336:13 path 182:18 329:1 pathological 62:9 pathologist 62:6 162:3 pathway 191:1,5 206:21,22 patient 171:14 328:18,20 329:3,18 330:3	350:10 patients 60:5 130:22 134:13 184:15 185:1 190:19 239:23,24 240:1 327:14,21 327:24 328:6,7,8 328:11,13,17 349:24 350:5,8,17 350:21 351:5,15 352:1 pattern 238:5 308:22 pause 271:6 315:22 pay 105:2 PC 2:2 Pecan 3:3 peel 359:11 peer 102:15,19,21 320:13,15,21 321:4 peer-review 103:5,16 105:9 peer-reviewed 27:21 95:11 103:10 pelvic 83:12 122:17,21 123:8 126:15 127:12,18 128:1 128:12 207:1,21 327:9,15 Penninkilampi 256:4,6 257:8 Pennsylvania 2:21 people 44:10,15 49:11 199:20 212:16 221:3 240:2 250:24 328:2 336:4 337:13	350:12 357:20 358:3,8,9 359:1 perceived 29:7 percent 56:2 274:13 275:10 275:19 306:24 308:5 percentage 55:22 60:3 75:20 76:3 273:12,23 274:23 302:4,9,14 307:10,11 327:21 331:23 341:15 362:22 percentages 303:3 perfectly 164:12,18 perform 42:13 241:8 performed 40:13 76:18 140:12 173:19 182:8 214:5,13 215:22 228:5 performing 252:17 perineal 17:2,7 27:4 82:1,12 83:3,10 91:21 107:4 109:3 110:24 111:14 117:6 140:2 147:2 152:18 168:14 181:13 183:1,13 187:6 189:9 198:9 200:16 201:5,24 210:7 211:3 214:6 230:10 235:3 247:22 248:10,23 249:16 250:6 283:13 284:18 306:16 311:12 319:22 338:20 perineally 166:22
--	---	---	---	--

perineum 183:7 206:22 231:5 232:4 296:11 301:9,16 302:1,5 305:9 321:11 334:12,21 339:19 340:17 341:9,17 341:22	pertaining 182:9 pertinence 78:7 pertinent 42:5,16 43:4 68:4 70:17 76:22 167:10 186:22 214:18	149:17 282:7 piecemeal 40:20 pieces 18:11 42:23 Pier 70:8,9 148:12,18 149:11 150:1,10 151:17 158:2	32:3 33:5 34:16 34:19,24 35:19,24 36:5 38:14 39:3 39:16 45:20 47:5 49:14 51:1 53:17 65:20 71:13 72:5 75:18 101:7,10,15 102:13 103:22 104:14,24 105:12 105:18,23 108:22 141:22 148:22 285:12 346:2,5 347:12 361:21	136:12,13 142:11 147:13 148:5 187:24 190:2 194:10 202:11 209:21 223:2 233:14 236:6 289:3 292:3 295:17 311:10 313:9 326:7 331:2 340:13 344:3 346:8 352:9
period 23:14,15,17 40:21 44:24 96:1 145:15 168:7 261:9 262:9 277:17 279:17 280:7,14,18,21 281:7,22 282:14 311:6,23 342:11 351:3	petition 219:12 petitions 30:22 221:16 petri 300:7 Ph.D 1:14 4:5 5:1 9:18 28:1 59:21 364:5 367:4,12	Pier-47 7:5 148:18 149:11 150:2,9,19 151:10 152:2 158:2,7 pipe 145:21 Pitocin 188:14 Pittsburgh 117:11	plans 85:9 352:2 plant 146:12 plasters 146:1 platy 137:10 plausibility 230:1,10 play 303:22 players 233:15 please 8:15 9:24 30:12 53:12 73:24 87:7 98:19 105:15 113:15 119:10 164:5,9 165:10 243:18 301:2 343:15 365:3,8	pointing 112:23 294:15 poison 311:1,18 policies 91:8 polite 74:10 polycyclic 358:14 polymorphisms 314:14 pooled 166:6 192:18,21 population 258:19 265:14 308:15 309:6,7 332:1 334:2 population-based 239:17 240:13 244:21 populations 166:17 254:16 portion 347:17,19 portions 221:8 336:23 pos- 187:1 posed 351:17 poses 214:7 position 30:3 69:21,22 90:7 94:21 185:24
periodic 23:12 periodically 309:23 periods 261:3 263:20 280:1 280:12,24 281:3 310:12,13 peritoneal 161:18 Perkison 79:21 person 308:19 person-years 212:6,10,17 310:15 personal 3:20 9:10 57:6 151:5 156:2,17 196:23 257:3 280:20 284:19 335:12 343:23 345:5,13 personally 156:19 persons 146:15 149:6 182:15 Perspectives 31:13	Pharmaceutical 31:11 pharmacologists 220:22 Philadelphia 2:21 phone 37:23 phrase 82:5,8 phrasing 83:13 physical 13:17 physician 10:2 55:16 79:22 physicians 207:23 208:4 213:20 220:21 physiology 84:4 picked 259:23 pickled 229:10 357:11,19 360:1,2,5,9,11 piece 51:4 87:15 119:23	place 97:18 315:18 364:8 placed 227:8 314:5 places 162:5 254:16 placing 245:1 plain 211:21 plaintiff 28:14 46:2,21,24 50:21 51:24 57:14 72:14 75:11 171:24 plaintiffs 2:11 8:18,21,23 10:12 15:5 23:1 35:7 44:9 47:14 49:9 53:15 57:12 78:20 80:6,9 96:13 117:24 118:13,21 142:24 178:2 224:5 plaintiffs' 2:6 13:1 20:3 24:6 25:11,15,17,20 26:17 27:10 30:10	plans 85:9 352:2 plant 146:12 plasters 146:1 platy 137:10 plausibility 230:1,10 play 303:22 players 233:15 please 8:15 9:24 30:12 53:12 73:24 87:7 98:19 105:15 113:15 119:10 164:5,9 165:10 243:18 301:2 343:15 365:3,8 pleurodesis 129:5,7,13 130:9 130:23 PLLC 3:2 plugged 280:16 pocket 123:24 point 38:1 40:3 42:11 49:19 86:23 107:1	plans 85:9 352:2 plant 146:12 plasters 146:1 platy 137:10 plausibility 230:1,10 play 303:22 players 233:15 please 8:15 9:24 30:12 53:12 73:24 87:7 98:19 105:15 113:15 119:10 164:5,9 165:10 243:18 301:2 343:15 365:3,8 pleurodesis 129:5,7,13 130:9 130:23 PLLC 3:2 plugged 280:16 pocket 123:24 point 38:1 40:3 42:11 49:19 86:23 107:1

186:22 187:3	136:24 158:18	202:6,18,21,24	pre-2014	presentations
188:22 204:14,20	159:3 161:22	206:5 210:8 211:3	276:20,24	345:12
205:6 206:4,10	170:20 171:21	211:6 216:9	preamble	presented
234:15,20,23	172:22 180:4	219:11 220:6	28:7 293:4,8	134:1 209:22
246:24 338:11,17	241:9 268:9,21	230:11 231:4,7,11	294:16,21,23	325:19
338:19	276:14 277:14	231:19 232:2,9	295:12	presently
positions	294:1 326:9 356:9	257:3 260:22	precautionary	85:10
30:22 93:21 191:23	potentially	262:10 270:18	97:13,15,17 98:7	presumably
205:19	77:24 221:20	272:2,14,24	98:10,16 99:15,18	331:17
positive	233:22 360:8	274:22 275:6,11	99:20 100:4,6	pretty
72:9,13 107:3	pound	275:20 288:6	precept	31:18 43:5 68:7
109:8,20,21 110:7	100:7	296:8 298:7,24	97:21	85:19 168:8
110:23 145:18	powder	299:5 302:4	precision	206:23,24 217:3
154:20,24 166:11	1:4 8:11 17:3,8	305:22 306:16,22	37:21	297:12
191:14 210:6	22:2,4 23:4,11	307:1,8,12,23	predecessors	prevalence
221:23 223:5,7	30:4 32:1 38:4,18	308:2,6,12 309:11	147:20	306:18
245:3,9,13,18,20	48:20 52:4,8,13	309:19 310:3	Pregnancy	preventative
261:22 263:8	53:8,23 55:1,8,9	311:9,12 313:11	318:13	99:22
316:8 354:14	62:23 63:20 64:2	325:13 326:12,18	pregnant	prevented
positives	64:10,13 65:5,8	340:6,16 341:8	333:2	325:19
187:12	66:13 72:18 73:1	350:10,13 351:8	premenopausal	prevention
possession	73:7,8,17 81:19	351:11 352:9,14	255:10	100:7 233:23
12:18	82:1,13,15 83:3,7	352:20,24 353:10	preparation	306:17
possibilities	83:10,18 84:17	353:16,21 354:2	19:8 43:22,24	preventive
328:23	85:2,6 87:16 90:8	354:10 355:2,6	108:17,20	58:9
possibility	90:13 91:13 107:4	357:22 358:23	prepare	prevents
244:23 262:7	107:13 108:5	359:5,23	24:4 42:10 43:19	202:11
278:17 312:4	110:24 114:17,22	powdered	prepared	previous
possible	115:24 132:11	134:17 189:22,23	17:9 24:4 50:6,9,12	48:4
90:15 111:22	133:3,19 139:8,10	305:3	126:13 346:23	previously
178:21 179:14	139:12,16,20	powders	347:10,11	10:24 28:13 29:9
187:11 189:2	140:21 141:4,5,12	140:3,3,15 167:14	preparing	32:23 42:3 48:2
241:24 242:9,12	141:16,20 143:5,7	power	18:14 65:11 284:17	51:14 56:14
243:11 244:14	143:9,24 144:8,16	211:15,17,22 251:5	prescribed	primarily
262:3 265:20	144:16,20 147:3	251:10,21 252:8	330:16	134:11 145:24
266:8,13 267:17	147:11,14 148:6	258:17	presence	146:4 153:20
268:7 272:14	148:13 151:11	practically	49:17 72:10 134:24	160:24 161:2
288:7,15 355:19	152:3,18,23	245:20	138:16 169:6	168:16 181:17
356:4,6,17	157:14 158:10	practice	184:12 265:5	279:6 328:3
possibly	175:8,15 176:7	31:16 38:24 47:21	319:1	primary
16:9 225:8 229:3	177:9,22 178:3	60:4 70:13 76:4	present	93:15 182:24
249:19 266:24	181:13 182:1,23	328:4 358:17	142:21 169:16	205:20 206:1
267:9 303:18	184:14 192:22	practices	170:6 175:21,24	210:23 360:7
posterior	193:19 194:6	1:5 41:21 76:1	244:4 266:11,14	principle
301:23	198:8 199:4,12	100:15	357:14	97:13,16,17,24
potential	200:1,16,18,23	practicing	presentation	98:7 100:6 311:18
37:5 97:19 134:10	201:4,16,18 202:1	335:1	324:7	356:10

principles 99:13	173:20 198:24 214:13 241:2	155:9	proven 111:3	publications 62:22 64:17,22
print 24:7	311:22 312:10,23 313:1,15 314:20	profession 335:4	provide 57:5 59:16 72:15 79:11 84:5 219:10	70:22 76:13,23 77:10 103:10 108:6 135:19 142:1 213:12 337:18
printed 320:9	340:3,13 341:12 341:13 357:18	professional 1:18 19:23 42:4 55:24 58:16 61:11 138:1 364:2,19	provided 25:11,14,17,19 26:16 27:10 30:10 33:4 34:16,19 35:6,18,24 50:3 51:10 53:3 59:5 75:17 77:21 78:11 78:20 101:14 102:12 142:23 318:2 346:19 349:13	publicity 272:1
prior 65:24 96:17 107:1 189:19,21 272:2 277:3,23 301:5 364:4	362:3	professionals 220:23	public 1:21 61:9 79:18 89:21 93:5,10,21 93:23,23 94:7 96:1 100:15 239:8 344:15,16 364:4 364:21 367:20	publish 76:9
privileged 13:7	processes 121:11 127:20 156:16	program 178:24 344:16	publication 5:9,11,12,14,18,20 6:5,6,7,9,10,13,15 6:16 51:3 63:18 77:3,15 91:16 94:9,14 96:18 101:14 102:3,14 102:19 103:19 106:23 123:7,17 136:3 138:5,11 213:5,8,9 214:18 321:1	published 31:12 51:14 61:13 61:16 63:6 64:9 64:12 71:3 85:5 85:17 86:17 92:24 100:18 103:1 107:1 117:2 119:10 146:8 185:5 204:20 206:4 208:19 214:3 216:1,5 260:13 267:2 281:3
probable 178:21 179:14 226:21	produce 154:1 216:2 321:13 362:16	professor 58:9 61:8	psychological 359:7	pull 192:9 295:4 314:24 315:23
probably 11:8 56:1,12 60:9 66:23 151:20 178:17 201:21 205:12 226:17 227:1,9 277:1 279:8 308:21 312:8 327:22 334:13 335:8 338:2 348:12 350:7,19 357:24	produced 14:14 20:1 72:4 75:21 149:6 313:14	progress 147:23 300:11	PTI 3:15,15 9:13,14	pulled 289:18
	produces 82:13 114:18 115:24 116:6,10 292:4	progression 280:4 303:16	public	pulling 123:24 349:20
	product 22:4,6 69:24 72:11 77:23 132:18 151:9 152:3 296:10 306:1 350:22	proliferation 115:2 139:1	proximity 323:4 341:23	Pulmonary 77:11,16
problem 312:15 345:3	products 1:4,5 3:20 9:11 22:2,2,5,7 23:4 49:17 57:16 60:15 73:20 75:16 140:13,21 141:5,6 141:13 143:5,7,9 144:8 146:1 147:3 147:11,15,22 148:7,13 151:11 151:13,21 152:4 184:20 214:7 219:11 284:19 343:24 344:23,24 345:2,5,13,17 350:10 353:16,21 354:2,10 355:2,6	promotion 116:13 120:13 313:18	psoriasis 122:4	pulmonologist 62:1 79:21
problems 93:13 134:11 312:21	production 133:12	propensity 212:23 304:18	psychological	pure 353:5,9,12,17
procedure 319:2 330:17	products	proper 172:15	psychological	purport 190:14
procedures 11:10 155:9,14	products	proportion 140:7 224:16	psychological	purpose 28:8 33:14,20 95:15
proceeded 214:20	products	proposal 136:21 219:9 248:15	psychological	purposes 283:9 349:4
proceeding 28:15 38:9	products	proposition 125:23 126:15 128:5 183:6 287:6 287:23	psychological	pursuant 364:10
proceedings 4:3 8:1 10:9 363:21	products	propositions 54:17	psychological	purview
process 28:11 43:18 95:19 102:17 103:5,9,16 105:9 120:10,12 122:11 171:18	Products'	propounded 367:6		
		prospective 237:7		
		protection 179:1 314:19		
		protective 135:10		
		proved 97:20		

13:6 pushes 334:11 put 78:10 124:1 207:18 230:6 putative 28:12 putting 346:15	92:18,21 107:17 110:10 112:9 113:14,19 115:14 116:22 124:10 127:23 128:9 135:17,24 148:4 153:8 156:11 158:24 165:5,8,10 165:13 171:13 172:4 180:15 206:15 214:15 215:2 216:3 263:16 285:4,4 290:24 292:7,9 293:7 294:17,19 296:18 298:21 300:18 304:11 307:2,5 312:22 316:7,21 317:13 321:18 338:13 344:4 347:9 349:1 349:15,18 351:1 351:17 352:2 358:21,23 359:21 360:3 362:2	245:8 quote 91:24	ratios 126:9 255:10 259:2 310:21 332:4 333:9,14,17	244:1 248:7 272:11 314:3 342:18 348:5,14
Q		R	RDR 364:18 reach 79:5 116:5 173:10 177:14,19 182:1 201:1 206:17 215:14 263:8 319:21 reached 141:11 182:14 311:11 reaches 169:18,23 177:16 177:18 206:13 362:6 reaching 215:8 reactant 318:11 reaction 287:1,19 317:1,19 317:20 322:22 reactions 119:21 121:6 312:21 reactive 199:6 read 44:15 100:1,24 107:9 112:13 127:17 130:16 154:16 166:19,20 222:2,3 250:3 252:24 267:8,11 290:15,19 297:12 297:16 336:6 337:19 365:3 367:4 reading 91:23 92:7,15,16 134:6 162:16 193:17 196:19 222:23 243:15	reads 286:1 ready 113:13,19 321:12 real 270:4,8 really 105:2 115:13 143:6 186:22 295:12 309:1 312:11 317:14 336:12 349:15 realtime 1:21 296:23 364:3 364:20 reason 94:1 132:17 133:22 133:23 134:8 241:20 245:4 286:13 300:4 302:17,21 351:22 365:5 366:4,6,8 366:10,12,14,16 366:18,20,22,24 reasonable 227:24 228:12 330:18 reasonably 39:11 reasoning 216:16 reasons 93:10 160:12 238:21 reassert 10:23 Reath 2:19 9:3 recall 14:6 29:12 31:22 37:10 47:22 48:3 69:12,14 70:7,24 79:13 90:10 101:16 105:7
qualifications 142:9,10 qualified 17:16 156:11 qualifier 309:16 qualifying 294:19 qualitative 173:8 quality 40:14 69:23 70:5 70:11 157:24 228:5 quantified 206:16 340:9 quantify 143:22 231:23 339:18 340:15 341:7 quantities 73:19 74:21 75:1 169:15 321:13 quantity 201:21 232:2,9 257:2 354:4 question 11:13,18 12:3,6 17:2 18:10 20:2 22:18,21,24 23:3 32:4 38:2 39:16 40:10,12 53:11,18 62:14 65:16 68:6 81:15 86:2 87:24 92:2,12,13,14,15	questioning 33:23 questions 15:6 23:7 33:9,17 34:3 85:24 87:3 112:6 113:1 150:3 156:6 159:13 162:24 164:21 168:24 181:22 195:14 218:18 245:1 256:16 278:7 283:24 285:23 301:5 315:7 343:7 363:4 363:14 367:6 quickly 282:9 303:2 quite 56:5 90:15 213:3 252:16 264:1 329:19 quotation	radar 204:3 radioactive 183:17 187:19 189:5 radionuclides 189:3 ran 29:20 33:6 36:2 336:1 randomly 193:23 range 309:23 333:14 ranging 276:22 rapid 122:12 132:19 304:19 rapidity 302:19 rapidly 278:21 279:4,10 rappel@seyfarth... 3:18 rate 45:10 297:19 303:18,20 306:11 rates 121:14 167:3,22 168:6 ratio 137:8 232:14 233:1 245:13 261:22 263:7,9,12 269:3 272:22 276:21 277:23 278:5 331:24 rationale 136:21		

142:11 187:16 240:23 241:7,24 244:20,23,24 269:7,8,13,18 270:3 272:2,15 276:11,14 277:14 280:6 286:19 301:13 338:3 340:22 341:14 recalled 271:21 274:21 275:6 recalling 281:5 receipt 365:16 receive 10:15 43:24 346:6 received 10:20 59:21 143:16 Recess 89:5 177:2 253:9 363:9 recessed 363:21 recited 146:18 recognize 225:18 357:1 recognized 208:12 213:13,17 233:15 267:21 recommendation 143:14 reconsider 203:14 204:1 record 8:4,16 10:23 14:16 89:4,8 177:1,5 247:16 253:5,8,12 363:8,12,19 recorded 314:9 recording 232:6 321:16 records 76:21 149:8,12,20	recruit 239:20 rectal 198:12 199:13,23 200:11 202:24 redline 337:2 redo 43:2 redox 181:3 reduce 131:21,22 147:21 reduced 191:6,7 194:13 196:13 reduces 132:11 240:22 reducing 306:14 reduction 132:6 193:24 194:17 refer 21:24 22:1 23:11 29:21 33:16,22 81:10 115:17 187:18 190:13 192:8 211:14 235:2 258:5 reference 20:19 24:22 35:15 35:17 51:18 210:11 296:6 referenced 7:1 143:12 158:5 216:19,24 217:3 280:11 296:10 347:5 references 15:11,14 17:24 18:3,7,17 19:3,17 20:5,15 24:11,15 29:9 32:24 33:11 35:22 52:17 referral 328:3	referred 24:21 102:3 151:24 184:8 192:15 210:12 270:13 328:1,6 330:2 referring 22:3 110:16 121:13 158:4 205:23 211:16 287:17 305:21 321:21,24 refers 211:17 228:4 refine 43:1 refresh 71:22 126:19 164:1 183:15 refute 54:19 245:11 refuted 54:10,16 217:22,24 218:4 refuting 328:24 regard 290:7 291:6 293:14 299:19 304:13 318:16 regarding 18:9 22:18 36:17 37:6 41:18,23 55:17 63:19 64:21 65:4,8 69:23,23 72:10,19 75:15 78:24 93:16 138:1 154:16 188:5 267:13 292:2 298:10,13 304:20 326:9 337:17 345:4 358:6 361:24 regardless 78:7 304:20 regards 294:22 region 187:6 198:9 200:17	201:6 202:1 311:13 Register 134:7 Registered 1:20 364:3,19 regression 272:18 277:18 regular 27:17 31:15 210:7 231:6,19 284:18 309:18 310:1,3,20 326:13,19 327:18 regularity 301:11 304:12 305:10 321:8 regularly 199:20,22 231:4 308:11 327:14 357:14 regulated 361:9 regulation 328:15 regulatory 97:7 219:13 Reid 6:6 159:15 160:2 rejected 219:11 225:6 rejects 203:6 relate 17:1 18:4 48:5,7 123:13 124:3 162:10 236:15,22 354:17,20 related 41:8 48:15 49:18 77:18 91:10 136:15 161:1 248:12 249:21 269:15 285:6 331:1 360:8 361:13 relates 1:7 37:22 41:11	55:18 66:13 82:11 91:8 95:12 117:5 212:6 337:23 339:8 relating 31:24 55:7 62:9,18 62:22 63:1 72:23 77:22 86:7 120:1 131:13 136:24 138:11 167:9 192:22 234:7 252:3 relation 112:2 126:23 209:24 212:13 relationship 30:4 38:19 41:3 47:5,8 48:11,14 51:6,8 53:22 54:11 58:4,12 86:18 90:7 91:17 121:10 127:6,8,19 133:11,14 136:17 140:2 154:16,20 159:3 210:7 211:3 256:22 262:24 263:1,18 265:6 268:5 284:18 286:15 329:21 353:4 354:10 359:1,6 relative 145:17,19,23 146:15 160:19 215:15 236:14 245:14 258:18,23 259:2,6 331:24 332:4 334:4 364:13,14 relatively 267:16 relevance 349:18 relevancy 349:8 relevant 42:24 334:10
---	---	---	---	---

348:18 reliable 78:6 reliance 101:21 relied 76:12,19 77:1,4 88:8 232:12 242:21 271:16 346:17,21 relies 205:20 relook 246:17 rely 70:13 71:9 76:6,8 93:4 97:6 104:22 174:3 205:17 242:18 relying 18:20 19:15,16 123:1 201:3 281:11 282:13 354:17 remains 169:22 324:9 339:11 remember 37:20 165:12 183:20 269:20 349:16 remembered 274:21 276:4 reminder 343:21 remove 200:5 removed 360:22 render 38:12 rendering 34:11 RENEE 3:17 Renée 9:9 343:15,22	repair 312:14,22 313:1,7 314:20 repeat 11:14 53:11 107:16 165:15 296:17 301:4 repeated 305:15 repeating 165:10 rephrase 11:15 336:16 344:5 replacement 268:15,18 269:5 replete 140:14 report 5:5 13:12 14:4 15:9 15:15,16,22 16:3 16:16,19 17:10,15 17:16,23 18:11,14 18:18,21 19:3,8 19:11,13 20:1,4,6 20:20 21:1,7,15 21:21 22:10 24:15 24:16,23 25:1,7 25:22,24 29:11 42:10 43:13,18,19 43:22,24 44:1,13 45:15 49:4 50:3,5 50:6,9,9,12,12,14 50:17 54:14,21 57:22 65:11,17,19 73:3 80:14 81:8 81:10,16 89:12 92:8,9 94:3,4 100:18 105:20 114:13 117:13,15 122:10 126:20 132:9 145:12,22 146:9 148:10 155:22 158:7 181:24 183:3 192:16 205:9 209:1 210:13 211:12 215:11	216:2,21,23 217:6 229:22 230:22 251:8 255:24 256:7,9,18 270:12 282:4,8 284:17 285:9,22 291:2 292:10 294:12 297:4 299:20 309:18 336:5,6,23 346:18,24 347:5 347:20,23 348:9 348:11 349:5 352:13 355:23 reported 84:11 109:8 113:22 157:22 166:7 174:24 175:2,5 185:14 191:10,11 246:2 261:13 283:12 reporter 1:19,20,21 9:16 12:6 364:3,3,3,19 364:20,20 Reporters 1:19 364:2,19 reporting 274:5 322:5,9,13 322:16 reports 19:7 40:14 49:11 49:13,16,24 50:24 52:7 67:21 68:9 72:8,9 116:14,23 117:2 120:2,3 132:3 140:1,14 141:21 142:2,5,21 142:24 143:3 146:10 310:16,19 353:8 represent 18:13 105:1 284:13 343:23 represented 345:21 represents 19:5 226:12 233:21	reproductive 26:11 27:13,20 82:4,12 83:6,11 84:4 86:12 87:10 88:2,14,19 116:18 119:4,13 181:16 181:18 183:1,8 185:7 186:24 188:6,8 191:3 200:18 206:11 207:17,24 301:10 301:16 303:3,21 304:14 305:9 request 14:7 51:11 72:21 108:22 285:11 requested 143:14 327:16 364:11 requests 12:16 require 100:9 173:9 241:16 306:20,23 required 100:10 171:3 328:14 requiring 217:2 research 27:18 31:16 38:21 40:13,15 62:9,18 63:12,17 64:8 76:5,15,18 87:13 91:8 93:15,17 105:17,20 126:20 129:17 132:3 138:5,11 139:11 139:24 140:11 158:18,23 159:2 159:12 165:21,21 178:23 225:24 231:1,1 238:4 248:16 249:6 251:8 254:15 285:11 300:14 301:21 310:19	313:8 332:3 334:8 347:2,7,24 348:13 349:13,17 353:8 354:1,3,9,12 researched 168:16 284:21 285:5,6 researching 118:4 347:18 reside 199:3 residence 209:21 residency 350:7 residents 60:7 80:19 resides 339:4 residual 200:6 266:7 respect 17:6 33:9 91:13 103:16 114:10 131:9 173:22 174:5 175:14,18 187:4 205:6 206:9 234:6 237:15 Respectfully 359:16 respiratory 77:14 134:11 respond 12:15 34:3 164:21 responding 30:21 responds 292:7 response 12:10 13:10 23:23 33:17,23 113:24 115:1,6,8,12 138:24 219:8 285:3 321:16 322:13,16 362:17 responses 321:13 322:6,9
---	---	--	---	---

350:20	retention	66:3,8,10,10,11	106:8,12 107:13	208:9 209:9 210:3
responsible	249:7 347:15	66:16,20,23 67:13	107:22 108:1,6,9	210:9,13 214:8
70:10 91:7 230:12	retrograde	67:22 68:12,20,23	108:18 109:9,12	215:5 216:6
352:21	183:22 184:3	69:13 75:7,9,15	109:15 110:4	218:22 219:2,15
responsive	retrospective	75:23 76:2 87:8	111:15 112:6,16	219:23 220:18,23
12:18 15:1 20:2	242:2 243:10	89:11 91:11 95:6	112:21 113:18	221:8 222:17
rest	244:13 260:12	100:17 102:16	114:1,10,14,19	223:14,23 224:5
265:14 323:15	269:11	108:16,21 142:4	115:2 116:2 117:9	225:4,24 226:18
restated	return	142:17,21 143:4,8	117:14,18 118:16	226:22 227:10,13
100:6	365:14	217:5 219:1 221:6	121:19 122:13	227:19 229:17
restates	revel	227:8 242:18	123:23 125:2,6,10	230:1,16,17
92:23	358:17	281:7 290:3	126:2,5,10,12	232:11,14 233:2
restating	reverse	295:23 309:8	128:17 129:4	234:21 235:14,16
210:22	306:14	320:15,21	130:10,14,17,20	236:16 238:24
result	review	reviewing	130:24 131:4	243:7,13 244:7,17
16:21 88:9,11	18:14 19:22 27:2	67:1 211:11 347:24	132:7,12 133:5,20	246:24 247:13,23
185:8 191:6	27:16 30:6 31:15	348:6,14	134:16,22 138:14	249:1 250:18
200:11 201:15	31:23 39:22 40:1	reviews	138:19 139:17	252:13 253:18,19
212:17 221:23	40:19 42:12,13,15	215:24	142:5 145:6	254:3 255:1,18
245:3 285:10	42:17 43:7,8 44:1	revisiting	146:20,23 147:1,3	256:13,23 257:4,9
305:17 306:17	45:14 46:5 49:5	278:17 342:4	148:14,19 155:6	257:13 259:8,20
311:19 313:17	50:5,8 52:20 53:1	Rheumatoid	155:10 156:5	260:4,14,22 261:6
314:16 334:6	65:14 66:23 68:14	121:18	157:15,20 158:3	261:11,18 262:11
348:2	68:15 72:22 73:2	right	158:20 159:5	262:17,21 263:2
resulted	75:11 77:14 79:6	10:3,9,13 11:5 13:8	160:6,13,19	264:4,8 265:3,8
64:17 146:10	80:23 86:3 90:6	15:9 19:18 20:15	162:13 163:1,8,23	266:5,15,22
203:13	90:10 95:11 98:19	21:8,15 24:1,12	165:18,22 166:8	268:12 269:16,22
resulting	99:9 102:20,22	25:1,18 26:12,15	166:21 167:15	270:4,14,21
87:10 88:3,20	108:19 113:1,4,10	27:7,11 28:1,15	169:8,9 170:1,4,8	271:10,13,17
137:18 310:21	113:17 164:8,19	28:19 31:2 32:12	170:22 171:8	272:3 273:1,5,15
results	164:20 193:13	34:11 38:5,21,22	172:2,12,22 173:1	274:3,9,16,22
72:10,13,19 82:1	203:12,22 205:13	38:24 39:7 44:24	174:22 176:14,16	275:2,7,8,12,21
83:4,7 86:12	205:17 214:14	45:2 49:5 50:13	178:12,18 179:10	276:7,15,24 277:8
111:6,10 120:13	220:10,13 223:13	50:19 52:18 53:18	181:16 182:11	277:24 278:22
151:16,18 157:23	224:20 242:21	54:22 56:16 59:19	183:3,9 184:9,16	279:18 282:12,23
181:13 191:2	257:22 282:4,17	59:22 60:1 61:21	184:18 185:1,24	283:14,20 285:19
194:9 196:18	291:14 316:5	62:10 63:7,22	186:8 188:9,16,24	291:21 293:9
215:23 222:21	320:13 321:4	67:5 68:21,24	189:10 191:12,23	299:16 301:12
223:18 232:4	348:2	71:7 81:5,9,20	192:16,19 193:2,9	309:4 311:4 312:2
245:6,16,18,19,20	reviewed	83:8,20 84:18	194:2,9,20 195:4	315:5 333:13
260:17 266:4	5:8,21 6:3 14:3	85:3 89:18 91:1,5	195:12,16 197:2	right-hand
269:19 277:4	19:8,14 20:18	91:22 94:10,19	197:24 198:8	160:9 243:24
326:4	35:9,12,14 40:21	95:1,8,22 96:6	199:5,15 200:21	248:15 272:7
retained	42:8 43:9,16 49:4	98:2,11,12,17	201:1,19 202:3,7	rise
32:3 36:16 46:19	49:12,13,15,24	99:15,16 100:12	202:15,19 203:4	20:18 238:12
48:20 57:15 65:19	50:2,11,14 51:1	100:18 101:1,11	203:17 204:16,23	245:14
96:14	51:12 52:7,11,14	101:18 103:2,24	205:1 206:3 208:1	risen

217:2	79:23,24	312:5,9 325:3	94:5 105:2 342:8	181:12 244:1
risk	rooms	355:11	sciences	247:24 248:17
27:4 84:18 90:13	134:19 342:22	safer	26:12 27:14,20	273:3 331:21
90:17 91:14,22	rose	359:10,10	59:18	second-to-last
95:12 96:10,17	109:22	safety	scientific	163:11
99:3 107:4 110:13	rotations	30:3 214:7	19:6 51:4 98:1,9	secondary
113:23 121:21	207:20	SALES	99:23 120:17	82:19 181:19
122:8 126:2 132:7	roughly	1:4	175:1 204:8	331:17
132:11,23 133:3	274:5 279:19 303:8	sample	213:18 218:6	Secondly
134:2,2 145:17,19	roulette	187:12 193:24	220:11 221:14	215:21
145:23 152:19	251:23 252:4	251:9	222:6 223:14	secretions
162:11 163:14	route	samples	224:16 269:14	200:7
166:18,22 172:11	82:19 179:3,19,21	143:14 190:3	313:8 339:3,13	section
172:15 173:8,13	181:20 182:24	San	scientist	24:16 112:14,18
173:20 174:21,23	298:10	3:4	62:4 70:9	113:6 115:17
190:20 192:23,24	routes	satisfy	scientists	124:24 125:22
193:22 211:5	179:11	43:4	150:23,24 213:20	157:23 249:13
214:5,7,12 215:15	routine	Saturday	220:21	291:7,11
220:7 222:1 231:3	23:12 328:14	1:11	scope	see
232:14 236:4,14	routinely	saved	344:10	18:1 30:12 40:13
244:4 245:14	321:11	233:22 305:17	Scott	41:17 60:5,11
247:23 248:11,24	Royston	saw	76:16	67:15 69:9 77:5
249:17 250:7	3:15 9:14	35:22 340:2	screen	99:4 109:5 149:23
254:2 258:18,23	rule	saying	204:4	155:3 183:18
259:3,6 260:20	227:23 228:11	127:21 245:11	screening	218:17 255:6
262:6,6 267:1,10	357:16 364:11	279:21 287:20	5:15 30:13 89:15	260:18 263:1,5,18
267:17 268:19	ruled	332:8	330:18	272:9 277:19
277:7 291:23	140:10	says	Seal	278:2 281:19
299:12,14 305:17	running	98:8 244:10,18	129:20	286:4 287:10
306:13,13,15	296:23	249:4,11,12	search	290:4 292:24
308:12,15 309:13	runs	250:11 288:22	25:13 34:20 36:3	297:4 315:20
310:4 311:9,13,16	346:10	294:4 321:3,22	40:12,23,24 41:1	316:23 317:19
311:19 312:1	Russ	329:4 339:14	41:5,10,15 42:7	319:16 327:14,24
325:8 330:14	36:22	357:16	42:24 43:2 79:6	328:11,13 335:23
331:4,10,13,18,24		schedule	214:17 295:9	339:24 340:14
332:14,16,23	S	351:3	349:20	seeing
333:3,4,6,10,22	S	scheduled	searchable	167:7,9 338:3
334:1 338:14,21	2:1 3:1	189:18	342:14	342:12
350:15 356:12	S-A-E-D	Schildkraut	searched	seek
360:10 361:17	27:24	6:16 255:13 270:12	41:1	241:19
risks	Saed	270:16 271:5,12	searching	seeking
146:15 160:19	27:24 51:5,9,19,21	277:15	315:2	348:13
330:13 332:4	313:15,21 314:5	school	second	seen
334:4	315:16 316:8	61:9 79:18 207:19	50:17 54:4 81:24	16:17 84:11 139:11
RNA	319:11,20 320:7	239:8 281:1	82:9,10 99:19	167:21 208:19
314:12 318:24	361:20 362:1	344:16 350:7	125:8,16 145:15	321:16 332:4
Roberta	safe	science	163:20 166:3,5	337:16 341:6

342:21 351:5 selected 71:12 selection 221:22 239:16 self-report 243:11 244:14 send 346:6 sense 336:9 sensitive 209:16 210:1 241:6 sent 14:10 328:17 sentence 99:19 107:9 112:22 286:1 287:20 290:18 301:7 sentences 113:13 286:22 separate 21:1 28:4 149:19 347:22 348:3 separated 310:14 sequestered 132:20 362:18 sequesters 116:2 sequestration 171:19 series 168:23 serous 153:20 212:19,20 212:21 237:2 serve 58:8 served 10:24 service 14:3 59:16 services 1:23 3:23 8:6 56:16 58:7,24 59:6 serving	58:23 59:9 105:11 session 312:12 set 15:11 16:14 19:6 19:17 38:13 43:13 54:15 81:7,18 95:15 155:22 364:9 sets 220:16 setting 54:15 57:7,10 settings 160:18 207:20 seven 297:8 seventh 58:15 Seyfarth 3:17 9:10 343:23 shake 340:16 shakes 340:8 share 24:6 35:23 44:13 117:23 346:7 shared 80:17 346:1,1 Shaw 3:17 9:10 343:23 sheet 146:13 365:6,9,12 365:15 367:7 shield 314:20 shipped 151:20 short 86:24 310:12 311:6 343:4 363:6 short-circuit 14:12 shortcut 281:19 shorten	311:22 shortly 344:9 show 25:20 72:15 84:17 88:9 92:9 117:15 119:8,20 124:13 132:10 151:1 185:6 200:10 202:17,23 209:6 210:6 237:23 238:4,7,15 245:13 246:8 253:24 255:3,17,20 257:7 262:9 268:5 313:15 showed 72:16 109:21 117:12,17 145:23 146:14 245:3,9 255:8,9,14 313:11 Shower 22:3,3,5,6 showing 237:3 318:17 shown 72:12 88:11 112:1 119:2 139:12 144:10 236:23 237:8 253:21 301:11 303:16 331:14 354:13 shows 192:23 213:1 231:2 238:4 260:20 273:3,7 shutdown 221:7 sic 26:1 144:21 side 248:15 272:7 335:22 sign 365:8 signal 211:19	signature 364:11 significance 109:23 238:13 245:15 254:6 258:24 259:7 261:9,17 262:5 263:11 276:24 significant 55:16 87:16 100:14 109:9 110:3,11 143:19 147:21 159:11 166:12 235:9 240:21 246:2,9 253:22 254:1 257:16 262:16 263:8,9,12 275:14 277:22 278:5 310:21 326:23 334:6 345:3 352:19 354:14 360:19 significantly 196:22 198:2 201:22 275:21 277:6 signing 365:10 silicate 180:13 similar 83:15 116:21 162:1 166:7 201:15 300:3 358:7 similarity 106:24 simple 68:7 simplicity 289:18 simply 61:7 136:3 245:17 251:12 252:16 254:14 334:14,16 340:21 single 221:19 299:13	314:13 339:19 340:16 341:8 sir 20:9 150:14 164:7 180:22 207:11 297:4 329:13 331:7 sit 123:6 156:7 sitting 67:5 situation 208:15 265:19 293:5 six 230:4 297:8 size 194:1 251:9 Sjösten 183:21 184:4 189:7 skin 286:24 skipping 198:3 slide 345:22 slight 360:10 slightly 16:20 193:18 slow 303:15 slower 303:20 small 74:20 76:3 77:21 159:4,11 160:15 169:15,16 208:22 223:7 279:7 334:15,20 348:7 353:23 354:4 361:1,3 362:21 smoke 358:8,11 smokers 265:22 smoking
--	---	---	--	--

265:13,18 266:1 358:8 SNPs 314:13 318:16 so-called 353:9 social 47:4 278:13,15 Society 338:12 sold 151:12 152:3 somebody's 318:14 somewhat 311:16 soon 352:4 sorry 20:12 54:3 67:9 69:7 86:21 100:19 103:12 107:16 119:17 163:11 173:7 184:1 197:8 222:23 236:8 243:14 260:3 271:9 298:22 310:10 316:1 sort 42:15 67:24 121:6 149:16 238:18 240:5 251:22 295:14 300:13 323:16 325:14 336:14,16 341:12 350:13 358:24 sounds 171:14 184:17 source 104:5 105:3 136:18 155:17 286:7 sources 54:10,16,18 104:7 104:11,13 127:8 143:16 157:17,18 South 2:14 3:13	space 323:16,17,17 324:8 324:8,9 365:6 speak 43:6 297:11 speaking 165:1 special 136:2 162:3,6 specialist 207:2 208:6 specialists 207:24 specialty 335:3 species 199:6 288:20,24 291:24 specific 20:5 21:24 22:17 22:18 64:3,4 73:18 78:14,19 92:5,6 93:1 115:14 134:5 137:23 171:14 175:7 216:20 285:4 330:13 344:22 specifically 19:15,16 23:9 41:16 62:20 64:21 88:24 90:10 105:6 116:24 126:18 177:15 180:23 220:2 267:12 289:2 299:21 317:21 320:1 339:14 specificity 264:12 specifics 316:14 Spectra 58:14 59:10,12 spectrum 235:20 258:8 288:12	spend 55:23 342:17 spent 45:13 60:4 347:14 347:18,19 348:5,8 sperm 302:19 303:3,9,14 303:19,23 sphincter 202:10 spin 213:10 spinning 251:22 252:4 split 57:13 spoke 79:11,15 spring 344:13 spurious 221:23 square 2:20 190:1 St 3:14 stack 24:10 staff 221:3 stage 142:12 330:20 stages 42:12 stamp 30:24 stand 128:5 254:22 standard 218:5 220:13 319:7 319:9 standing 186:20 187:5 304:2 starch 29:1 183:22 184:4 189:22,23 190:9 190:10	start 12:3 40:16 65:10 65:17 232:3 250:24 263:6 started 65:18 168:11 335:1 340:3 starting 39:22 startling 301:11 304:12 305:10 321:8 starts 272:7 state 9:23 41:17 106:23 107:6 109:7 114:16,21 122:10 127:11,16 128:17 132:9 166:10 180:18,21 181:2,6 229:22 248:20 249:10 256:19 257:1 290:6 291:2 292:10 321:9 364:22 365:5 stated 187:11 203:16 245:7 statement 67:3,7,14 120:15 123:2 138:21,22 167:19 203:12 286:7 292:12 301:7 states 1:1 90:4 91:1 93:18 97:18 100:12 113:21 219:14 221:13 291:7,10 306:4 stating 17:16 statistical 109:22 110:22 211:15,17,21 223:18 233:8	254:6 258:23 259:7 261:8,17 262:4,20 276:23 331:2 statistically 110:3,11 246:2,9 253:21 254:1 262:16 277:6,22 354:14 statistician 253:15 status 103:15 199:7 stay 284:3 stays 339:14,15 Steering 2:6 stenographic 247:15 stenographically 364:8 step-wise 147:23 167:18 sticker 28:18 stimulate 115:1 139:1 188:15 stomach 360:9 stop 13:3 301:12 306:24 331:20 344:5 straying 358:22 stream 345:6 Street 1:15 2:4,9,14 3:3 3:13,18 strength 229:23 230:8,19 235:17 strengthened 17:1,6 strengthens
--	---	---	--	--

95:7	structures	238:20,20 239:16	221:19,19 222:20	Subscribed
stress	137:7 154:8 321:23	239:18,22 240:12	233:1 237:16,17	367:15
134:21 135:1,5,7	321:24	240:12,13,14,20	237:18 239:20	subscription
135:12,15,20,23	student	240:22 241:6,8,12	240:21 241:1,2,4	346:13
136:2,4,16,19,22	345:11	242:2,3 243:13	242:15,17 249:14	subsequent
137:15,17,20,24	students	244:5,7,16,21	250:23 251:16	40:20 284:20
138:6 198:24	344:15	245:9,10,13 246:2	253:24 255:7,9,13	subset
200:10	studied	246:8,18 249:23	255:14 257:11,12	77:21 78:5
stretched	161:4,13 212:16	249:24 250:16,17	257:17 258:5,9,12	substance
329:22	226:2 265:8	251:5,6,7,13,18	259:3,8,18 260:9	132:21 135:4,7
strike	310:13	251:20 252:3,9,15	260:13 262:3	170:20 178:21
31:1 33:2 34:6	studies	252:18,20,21,24	266:9,12,15,21	179:2 183:21
46:23 53:16 61:12	84:16 88:7,10	253:21 254:7,11	269:3,11 270:12	227:18 328:9
63:5 64:8 69:7	106:24 107:13	254:20 255:3,16	270:16,20 271:5	340:7 360:21
80:4 90:1 98:14	108:5 109:8,19	257:7 258:9,22	271:13,19 272:4	361:4 367:7
118:20 121:15	111:7,10,20,22	259:5 264:20,23	276:2 277:2,4,15	substances
122:3 131:6	112:1,15,20	265:1 266:5 268:2	281:6,11 282:13	73:19 74:21 91:10
140:17 141:10	113:22 114:1	268:4,8 270:11	286:10,16 287:23	135:14 202:5
152:9 160:22	119:2,7,11,19	271:15 281:6,11	296:11 297:14,15	226:12 295:1
176:11 186:6	123:13 124:2	282:13 283:11,16	299:11,18,21	353:11
204:12 205:4,14	125:5,10,18,22	283:19 286:2	300:6,12 313:10	substantial
210:4 212:9	126:9,13 128:3,4	293:17 294:2	321:16 332:3	134:1 167:5
217:22 219:20	128:8 131:7,13,19	295:23 296:5,9	341:11	substantially
222:14 227:16	132:5,10 135:18	297:9,20 298:17	studying	103:7
236:9 240:8	140:6,12 146:11	298:19 301:14	265:10	substantive
241:21 259:6	146:14,18,19	303:11,15 304:1,3	stuff	79:12 194:8
264:18 265:17	147:1 154:15	305:2,4 308:7,15	349:17	Substitute
276:22 356:4	160:10,21,24	309:8 310:11	subcommittee	29:1
359:14	161:13,15 162:10	311:21 313:13,21	129:19	substituting
stringent	163:22 167:23	314:12 322:5,8,12	subgroup	29:5
219:10	174:24 181:23	322:15,21 331:14	193:22	substitutions
strings	183:5 185:17	334:3 354:5,13,13	subject	75:5
348:11	188:1 191:12,15	study	51:13 138:6,12	subtypes
strong	192:19,22 193:6,9	38:21 84:12 101:6	365:10	112:3 237:12
86:18 121:10 235:4	194:5 195:8 200:9	101:10 110:17	subjects	successful
235:24 255:9	201:3 202:17,23	123:1,7,16 126:14	238:11 239:20	148:3 341:1
288:19,22 291:3	205:20 206:1	129:12 130:8,12	241:17 252:10	suffer
292:10 293:24	208:19,24 210:6	136:4 145:20	341:2	241:12,14
294:7 326:8	210:11,23 211:11	147:7 154:19	submission	suffered
stronger	214:23 216:9,11	161:6 182:9	57:22	258:17
17:18 85:1	216:17,18,19	183:24 184:2,3,6	submit	suffice
strongly	217:1,3,7,10,13	185:21 187:11,18	96:23 97:3	351:14
110:8 111:2	217:18,23 218:1	187:24 188:4,7,20	submitted	sufficient
structural	221:18 223:4,6,6	189:7,17 194:13	25:7 51:3 96:20	59:15 216:2 226:7
279:8	228:4,6,9 232:17	195:12,15,17,22	221:15 320:18	226:13 230:5
structure	232:22 237:1,4,7	196:4 211:15,18	submitting	283:8 312:23
180:24 323:7	237:8 238:7,10,15	211:22 212:7	103:10	321:10,12

suggest 107:2	165:5,11 174:16 176:23 180:14	sworn 9:19 364:5 367:15	takes 281:17	225:7 227:15,17 230:11,22 234:7
suggested 38:13	186:22 195:21 197:9 238:21	synthesize 93:21	talc 3:5,10 10:8 22:2	235:3 237:9,24 238:8,16 243:11
suggestions 336:11,19	240:4 243:21 260:2 264:24	system 83:20,24 84:4,6,10	27:4 29:1,6,7 37:3 41:2,9,11,24	244:3,14 245:3 246:3,10 247:22
suggests 248:9 249:15 339:4	270:7 292:6 305:23 329:16	208:8,12,17 209:3 303:21 337:17	49:17 55:2 64:19 64:21 69:23 70:5	248:9,24 249:8,9 249:16,18 250:6
suitability 29:5	343:12 346:9 362:21	362:12,15 Systematic 27:2	85:12 86:8,13 87:11 88:3,11,20	252:3 255:4 260:21 268:5
Suite 2:10,20 3:4,13	surface 54:19 217:12		89:22 90:12,17 91:21 107:4 109:4	269:21 271:22 273:14 274:2,6,15
summary 109:1 149:17	surgeries 207:21	T	111:14,20 114:23 115:5,8,10,10	276:4 277:5 283:11,13 284:19
superior 132:15	surgical 133:20 134:16	table 24:11 108:15 109:1	116:5,6,9,15 117:5 118:13	286:3,10,17,22 287:9,16,18,21,24
supervisor 60:6	surprised 340:22	260:16,17,20 272:21 277:20	119:1,14 120:1 126:4 127:6	288:8,23 290:9,21 291:6 292:1,2
supervisory 69:22	surrogate 318:22 354:21	tables 102:2,11	129:13 130:23 132:16,21 133:11	293:14,16 294:1 294:22 295:13,18
supplemental 102:2,11 347:8	surround 323:15	Taher 5:12 27:5,6 89:16	133:14 136:16 137:5,6,6,10,12	295:22 299:19 300:2 302:9,13,18
support 79:12 89:13 91:20	surrounding 116:12 180:24	94:24 100:16,24 102:3,14 105:23	138:17,18 139:4,5 139:21 141:14,17	303:1 304:13 305:8,16 313:16
148:12 191:22	321:23,24 362:7	106:1,23 107:11 108:8 111:11	141:21 142:14 143:16 147:22	313:17 314:5 316:24 317:2,20
209:1 217:15,18	surrounds 323:6	112:7,10,13 113:21 245:23,24	151:9,24 156:8,13 156:17,20,24	319:17,19,21 321:17 322:6,9,22
221:15 296:6	surveillance 328:14	361:24	157:6 158:11 166:22 167:4,9	324:23 334:11 335:13 338:2,13
303:12 305:7	survey 129:12 351:24	take 10:7 12:6 43:16	168:14 169:7,12 169:19,22 170:12	338:21 339:10,18 341:15 342:5
supported 237:16 305:12	352:3	96:5,5 97:18 98:2 98:10 99:9,21	171:19 176:2 177:17,17 180:9	344:11 345:17,20 353:5,9,12,16,17
supporting 270:13	Susan 70:6	124:12 130:1 164:1 166:18	180:20 181:7 182:10,13,18	355:22 356:19 357:5 358:20
supportive 34:10 193:21 196:6	susceptibilities 267:14	176:19 220:15 228:22 229:1	183:6,12,23,24 184:2,8,12,14,20	362:16 talc-containing 301:8,15
217:7 219:5,8	susceptibility 308:20	242:23 243:23 248:14 260:5	184:24 185:8,15 186:19 187:5,22	talc/ovarian 36:17 268:1
246:24 259:19	susceptible 83:17 239:16	281:14 290:19 292:17 315:1	189:9 190:20 192:24 196:11	Talcs 31:11
supports 95:7 126:14 190:15	suspect 154:5 199:18	343:3,14 363:6	198:11 199:3 200:11 206:10,13	talcum 1:4 8:11 17:2,7
190:23	208:21 329:23	taken 89:5 92:8 177:2	209:24 214:7 221:24 223:7	23:4,11 30:4 32:1
sure 14:13 36:1,2 39:6	swear 9:17	363:9 364:8	224:12,14,18	38:3,18 48:20
53:14 54:6 62:13	sweating 200:6			
62:16 68:3 70:3				
87:1,5 105:15				
107:19 113:16				
129:16 135:16				
136:9 150:21				

52:4,8,12 53:7,23 55:1,7,8 62:22 63:20 64:2,10,13 65:4,8 66:13 72:17 73:1,7,8,17 81:19 82:1,13,15 83:3,7,10,18 84:17 85:2 87:16 90:7,13 91:13 107:13 108:5 110:24 114:17,22 115:24 132:11 133:2 139:7,10,12 139:16,20 140:3 140:20 141:4,5,12 141:16,20 143:5,7 143:9,24 144:7,15 144:20 147:3,11 147:14 148:6,13 151:11 152:3,18 157:14 158:10 167:14 175:8,15 176:7 177:9 178:3 181:13 182:1,23 198:8 199:3,12 200:1,16,18 201:4 201:15,18 202:1,6 202:18,20,24 206:5 210:8 211:3 211:5 216:9 219:10 220:6 230:11 231:4,6,11 231:19 257:3 260:21 262:9 288:6 302:4 305:21 306:16,22 307:1,8,12,23 308:2,6,11 309:11 309:18 310:3 311:9,12 313:11 325:13 326:12,18 340:6,16 341:8 350:10,13,22 351:8,11,16 352:9 352:13,20,24 353:10,21 354:2 354:10 355:2,6	357:22 359:23 talk 134:20 160:8 163:21 165:20 254:23 256:17 264:7 288:2,4 328:22 335:6 talked 38:8 44:16 46:3 47:13 49:2 55:2 117:16,19 118:18 170:18 259:14 268:12 278:8,16 283:17 287:13 301:3 312:11 talking 45:23 55:24 65:14 161:7 164:7 177:8 196:17 205:9 233:7 246:6 291:1 307:10 309:3 315:3 321:7 342:4 talks 112:14,18 126:22 290:1 tallying 45:16 tape 89:4,8 177:1,5 253:6,8,12 363:8 363:12,20 taught 344:13 teach 344:10,12 technetium 183:17 189:5 technical 19:7 technically 65:18 telephone 39:4 tell 11:13 26:23 36:1 44:3 67:4 76:11 118:8,11 119:10	124:5 129:14 169:20,21 225:18 243:19 259:22 281:10 288:21 292:22 339:23 342:2 telling 124:8 tells 110:21 328:21 ten 56:12 310:20 335:17 tendency 213:10 tenets 310:24 term 135:22 136:23 208:12,15,17,20 212:5 265:2 304:12 337:16 terminated 58:3,11,16 277:3 terms 18:15,20 20:23 22:14,15 41:2 43:6 46:9 56:17 62:18 76:20 94:13 133:9 136:20 138:5,8 159:9 160:8 201:21 235:21 252:8 278:9 280:21 331:6 345:2 349:20 Terry 6:8 191:19 192:1 192:15 194:5 195:3 268:11,14 268:20 269:3 test 72:19 143:17 157:23 162:6 196:20 198:1 318:17 330:18 353:11	tested 143:17 testified 9:20 55:6 56:8 279:16 339:16 347:13 348:16 349:23 352:7 354:7 testify 17:14 57:5 124:4 364:5 testifying 83:2 149:6 testimonies 71:3 testimony 11:5 19:20 24:19 56:17 65:24 68:19 71:1 78:21 118:21 128:21,23 152:14 173:14 187:2 190:18 239:2 251:17 252:2,12 252:14 301:13 332:20 364:8 testing 70:11 72:8,16 140:13 141:21 142:18,24 143:5,7 143:9,11 151:18 155:17 157:13,19 157:21 330:12 tests 85:11 86:3,6 150:24 162:3 197:12 206:8 209:6,13 319:7,10 Texas 1:16 3:4 8:10 58:4 59:1,4 239:7 364:22 text 339:3 textbooks 338:5,9,10 Thank 11:2 21:17 54:7	130:5,6 159:23 192:10 196:1,2 243:3,4 283:9 284:7 316:4 343:2 363:2,16 Thanks 344:8 theoretical 117:1 theoretically 242:11 311:5 317:10 theory 85:6,12,18 117:4 122:15 131:17 168:2 186:15 190:15,24 194:16 197:15 200:15 203:7 204:14,15 206:5,9 209:2 210:4 therapy 268:16,18 269:5 therapy-treated 255:11 thereabouts 231:9 thing 133:15 142:20 241:11 278:14 295:15 318:17 336:17 things 12:22 38:11 42:19 49:18 89:10 119:8 124:3 133:9 175:21 204:9 209:22,24 222:19 271:20 278:7,18 295:5 298:10 305:4 310:14 314:10 318:6 323:24 324:19 329:22 332:24 333:20 335:10,11 335:12 340:8 344:17 347:21
---	---	--	---	--

348:3,23 349:14 349:21 351:4 357:15,16,22,22 358:2 think 11:11 24:17 30:8 35:21 37:9 44:22 49:18 50:23 52:23 64:1 66:22 67:17 74:14 77:5 80:17 81:1 82:10 84:13 85:19,24 86:16 87:13,13 92:18 94:1 104:7 108:12 111:8 118:6 120:22 121:23 122:1,23 123:18 124:14 126:21 127:16 128:8 132:2,8 133:8 141:15 143:15 144:10 148:5 154:14 156:11 167:17 173:18 178:10 193:3 201:8,20 203:12 203:14 206:19 208:14 209:20 213:22 214:4 217:16 218:4,15 219:7 220:12 228:3 231:24 239:3 247:4 251:19 256:10 258:15 259:23 260:8 266:10 268:7 271:9 280:19 282:8 284:2 285:1 289:1 293:2 294:14 298:8 299:8 301:24 303:7 304:6 305:11 307:20 311:14 314:1 315:4 316:12 320:24 326:7,15,22	333:18 335:14 336:1,13 337:5,15 337:21 338:18 340:3,12,24 341:20,20,22 342:9 343:1 345:20 346:4,8 347:3 350:6,24 352:17,19 356:8 356:19 358:21 359:18 thinking 80:18 105:19 267:12 362:1 third 26:14,15 83:14 125:21 208:7 243:24 273:7 thirty 365:16 Thomas 47:16,19 Thompson 2:3 8:19,20 46:10 46:11,16,18 47:9 48:11 236:12 Thoracic 129:18 thoroughly 102:8 thought 20:2 29:21 33:16 33:22 167:13 227:3 264:14,15 271:24 336:9 thousands 159:8 three 46:14,17 47:9 106:22 185:18 221:6 245:21 291:24 297:8 threshold 311:8,11 312:1,2,4 312:8 313:6 325:3 355:11,12 thresholds	326:9 thumb 13:20 36:5,11 thwarting 122:12 time 8:7 11:12 16:19 23:14,16,18 25:7 37:3 39:12 40:20 45:9 55:22,24 57:21 59:15 60:3 60:8 75:5 101:23 120:4 147:13,18 148:6 161:17 169:19 192:5 199:1 209:21,23 215:19 228:22,24 234:6 260:5 261:4 261:9 277:24 280:5 290:19 303:7 306:11 310:17 311:6 312:5,18 323:22 323:23 324:2 327:8 329:22 339:8,10 342:12 342:17,23,23 347:18,19,23 348:5,8 351:3 359:3 364:8 timely 99:21 times 206:18 282:20 305:15 309:24 329:17 332:14 Tinsley 3:12 9:12,12 363:3 tissue 133:12 135:1,2,5 135:11 170:11 287:4 313:12 tissues 114:18 116:1,11,12 135:6,8 185:1 198:13 199:14,15 199:24 200:13	286:23 287:15 321:14,15,20 titanium 292:1 title 27:2 titled 28:24 31:10 32:15 77:18 249:14 270:17 today 8:6 9:16 10:7,17 11:10 12:13,20,24 13:20 14:21 15:2 15:7 16:13 17:13 17:18 22:1 23:23 24:21 28:4,22 29:18 33:4,15,21 34:1,9 36:6 45:21 50:18 51:16,20 74:7 83:2 100:22 120:18 124:4,6,12 156:7 181:5 206:3 218:14 305:15 312:12 344:3 345:24 348:17 352:7 354:7 361:24 Today's 16:11 told 38:2 39:20 42:9 43:10 44:7,19 47:2 79:7 80:8 84:23 103:21 118:9,19 167:12 214:4 216:4 278:10 351:10 top 165:23 256:19 topic 216:6 345:12,13 topics 41:6 toss 109:15 total	19:22 161:3 307:16 310:15 totally 148:3 296:19 touch 344:17 345:1 touched 64:18 touches 323:12 toxicity 180:4 toxicologic 311:20 toxicologist 10:5 47:20 137:4 toxicologists 220:22 toxicology 59:22 178:24 300:15 310:24 328:4,5 334:24 335:2,5 toxin 299:13 toxins 299:12,15 trace 170:11 177:8,13,21 track 296:17,24 362:5 tract 82:4,12 83:6,11 86:12 87:10 88:2 88:14,19 116:18 119:4,13 181:16 181:18 183:1,8 185:7 186:24 188:6,8 191:3 200:18 202:13 206:11 207:17,24 301:10,17 303:4 304:15 305:9 training 19:23 55:17 138:2 transcribed 314:12 318:24
---	--	---	--	---

transcript 69:14 221:6 364:7 365:17,18	Trendelenburg 188:21	106:21 108:15 163:10 196:16 285:24 301:1	308:9	130:23
transcription 367:5	trends 354:15,16	turning 305:13	Uh-huh 320:12 344:1	undo 312:23
transcripts 50:1 52:12,15,21 66:4,7,20,22 67:2 67:21 68:8,12	trial 16:6,15 17:14 56:9 56:19	Twitter 342:7,22	unable 241:18 255:22	unfair 92:19
transformed 319:4	tried 54:12	two 25:16,18 35:21 37:12 41:3 77:10 89:10 96:5 113:13 145:5 148:11 149:5 150:17 151:24 160:11 201:21 221:5 222:19 272:12 297:7 299:12 327:13 343:5,15 347:21 350:12	unaware 67:24 205:4,5	unfortunately 251:15
translates 236:5	true 90:19 121:5 154:7 172:5,9 190:12 216:14 262:23 263:17 267:5 275:24 301:20 326:15,16 334:19	two-thirds 272:12 306:10	uncontrolled 221:22	Union 3:15 9:13
transmission 134:10	truth 364:5,6,6	type 25:12 61:17 144:7 146:2 153:12,21 153:22 155:1 172:24 174:12 179:15,16 244:6	Undated 5:12	United 1:1 90:3,24 93:18 100:12 219:14 306:4
transport 184:11 185:21 186:11 188:6 202:11 301:8,15 303:7 304:13,19	try 11:15 14:12 34:2 39:17 156:12 231:23	types 76:2 144:10,19 145:8 146:5,17 153:24 154:1,12 154:13 155:6 179:2 240:11 241:3 280:2 328:6 357:2	underlying 99:12	universe 231:1
transported 183:7 305:8	trying 15:4 18:5 112:8 311:7 328:18	typical 45:5	Underneath 126:1,4	University 58:4 59:1,4 239:7
transports 202:21	tubal 190:13,14,19,23 191:3,17 193:1,20 194:7,19 196:12 196:24 197:18 198:4	typically 42:13 70:13 71:2 238:12	underpowered 241:18 251:16,18 251:20 252:16,22	unknown 266:20
trash 349:22	tube 323:3 324:1,12	U	understand 11:13,14 15:4 18:5 22:8 23:10 80:3,5 87:21 95:21,24 112:11 127:18 168:7 180:15 207:22 284:14 310:23 324:21 329:19 339:17,20 344:4	unmeasured 266:13,17
travel 200:18 303:2	tubes 183:14 184:4 190:3 190:5 191:5 201:1 303:17 322:17,23 323:15	U.K 308:9	understandable 296:20	unreasonable 134:1
traveling 202:6	tubing 146:13	U.S 118:24 178:24 305:18 306:21,24	understanding 36:11,13 38:10 72:7 73:5,16 75:3 76:1 78:4 100:3 102:23 138:1 147:19 148:2 151:15 156:17 157:16 349:1	unrecognized 266:17
travels 200:16,23 201:6 202:14	Tucker 2:13 3:12 9:13		understood 11:20 53:20	update 94:8 237:16
treat 60:11	tumor 166:16 313:3		undertook 32:2	updated 220:9 258:5
treated 254:14 316:17 319:17 349:24	tumors 280:2,4,13		underwear 341:11,16	updates 58:20
treatment 212:14,15 314:17	turn		underwent	uploaded 24:5
treatments 93:15				upper 183:7 301:9,16 304:14 305:9
tremolite 77:13 144:11,21 145:3 146:6				urethra 202:2,7,10,15,22
trend 110:23 114:4 255:9				urinary 202:13
				usage 268:16 269:5 310:12
				USB 5:21
				use 17:3,8 23:4,11,12

23:13,21 27:4	useful	vapors	3:22 8:3,5 9:15	34:2 39:16 329:14
38:3 53:7,22 82:1	171:1 325:16 349:3	360:23 361:2	89:3,7 176:24	336:24 349:2
82:12 83:3,10	349:22	variation	177:4 253:7,11	War
99:14,18 107:4	user	136:22 192:24	363:7,11,18	145:15
131:9,13,20	231:14	varies	Videotaped	warned
132:10 133:19,24	users	56:5 332:2	1:13	213:23
134:15 140:2	131:14 170:12	varieties	view	washing
166:21 168:15	192:24 211:6	344:19	202:5 236:6 289:3	190:3
169:19 174:4	uses	various	292:3 295:22	Washington
181:13 182:22	28:11 280:14	18:11 41:1 52:15	331:2	3:19
184:14 187:13	usually	71:4 79:17 93:23	viewed	wasn't
189:8,9 190:14	169:14 180:11	107:13 143:15	91:17	144:3 156:10 251:7
192:22 196:11	281:2 295:4	144:9 175:3 188:2	viewing	258:17 260:2
199:11 200:11	328:20 329:20	215:24 245:7	342:19	287:8 290:24
201:17,18 202:19	350:18 352:1	280:15 286:23	visit	307:2
202:24 208:20	uterine	287:12 308:7	342:16,23	waste
211:4 214:7 216:9	188:15 198:12	344:19 361:8	vitae	345:6
220:6 221:24	199:15,24 200:12	vary	5:6 21:7 57:18	Watch
230:22 231:19	uterus	153:22 231:15	58:20 70:24	342:9
232:10 235:3	200:20,24 302:15	308:8 309:22	vitamins	water
237:24 238:8,16	322:13	vast	170:7	170:7,7 311:3
243:11 244:3,14	utilize	245:12	volition	waterfront
246:3,10 247:22	20:22 317:9	vegetables	334:14	43:6
248:9,23 249:16	UTMB	229:10 357:11,19	volume	way
249:18 250:6	59:6,6	360:1,3,5,9,11	345:5	18:15 37:4 81:2
252:3 254:5		velocity	voluntary	82:6 93:12 136:20
260:21 261:10,11	V	303:14	219:9	141:8 164:17
261:13,14,17	vagina	Venter	vulvar	207:1 217:14
262:10,13,15	200:19 301:23	183:17 187:18	198:12 199:14,24	245:2 272:12
263:10,12,14	302:6,10 304:23	verbal	200:12	294:21 302:6,10
270:18 272:3,15	322:6 334:12	336:20		302:11,14 316:18
272:24 273:18	vaginal	verbatim	W	319:20 320:3
274:6 277:5	198:12 199:14,24	364:7	Wagner	332:5
283:13 284:18	200:12	verify	129:20	ways
288:6 298:6	vague	92:24 175:21	wait	18:12 39:19 208:23
306:15,19 307:7	143:10 147:18	vermiculite	250:24 298:20	299:11 328:23
307:11,23 308:1	174:15	64:18 77:12,17	want	347:22
308:11,16,17,21	valence	version	21:24 33:16,22	we'll
309:11,18 310:1,3	180:18,21 181:2,6	337:8	39:7 44:6 74:8	10:16 26:10 30:13
310:14,14,21	valid	versions	88:17 113:12	32:18 85:22 87:3
311:9,11,14 312:2	173:10 175:4	44:1	246:20 251:24	124:15 130:1,1
312:8 315:16,17	223:17 238:21	versus	254:23 278:6	159:20 163:2
316:23 319:11	305:11	111:21 251:6	283:6 284:1	195:21 228:24
326:12 338:20,20	valuable	317:20 347:18	292:11 301:1,4,6	229:1 260:4
339:19 341:8	42:18	video	301:12 309:10	343:13
350:10,13,22	value	8:9	315:1,12	we're
351:16 359:5	28:24 358:4	videographer	wanted	11:10,19 28:17

89:3,7 168:10 176:24 177:4 195:16 199:9 213:22 233:7 253:7,11 296:23 363:11 we've 12:11 13:5 24:24 36:12 46:6 47:11 58:20 65:11 86:21 94:24 100:20 102:4,15 160:3 225:11 235:23 238:23 254:2 259:14 322:3 332:15 343:4 weak 203:8 204:15 206:6 233:2,18 webpage 41:23 website 41:23 43:9 225:13 225:21 websites 79:7 214:4 278:12 278:16 342:3,7 week 60:6,8,10 309:24 weeks 30:8 40:21 Weibull 282:20 weigh 254:6 weighing 251:5 277:15 weight 91:19 229:23 230:3 230:6 267:15,24 welcome 14:17 went 35:4 168:23 275:1 275:11 319:15 349:22 Werb	126:21 whatsoever 299:2 wheel 251:23 252:5 width 137:9 Wild 286:9 Wilde 286:6 willing 226:20 withdraw 62:16 73:12 131:11 176:12 190:21 224:8 235:22 264:5 withdrew 294:16 witness 9:17 10:11 13:8 20:11 37:5 40:3 47:14 48:7,15 54:6 56:21 67:19 71:1 74:8 80:9 113:5,18 150:4,11 164:16,23 165:3 165:12 192:4,10 196:1 207:12 223:2 243:3,19 257:20,23 258:2 282:6 291:19 295:8 296:15 315:4,13 316:1 332:22 343:17 359:19 364:11,11 365:1 witnesses 52:15,16,21 67:23 70:14 woman 185:7 186:18 187:2 187:5 231:15,16 299:4 308:18,23 309:3,10 310:3 330:8,15 331:5	woman's 86:12 87:9 88:2,19 116:17 119:4,13 169:18 200:17 202:2 304:14,23 319:21 331:4 334:20 338:14,21 340:17 341:9,16 women 60:11 118:24 159:10 160:16 161:3,12 166:21 167:3 178:2,4,6 182:22 185:19,23 188:14,21 189:17 189:19,20 190:8 191:8 193:19,24 194:18 196:12,22 197:17 198:2 202:13 207:7 233:20 250:17,22 255:10,11 260:21 269:19,21 271:21 273:4,8,13,16,21 273:24 274:6,8,13 274:14,20 275:4 275:10,19 276:3,6 283:12 288:6 296:11 298:4,17 299:3 304:2,8 306:21,24 307:11 307:11,23 308:2,5 308:11 310:16 311:9,12 326:12 326:17 327:21 331:14,15 332:1 351:7,9,11 women's 82:16 207:3,17 wonder 118:3 wood 229:15,18 Woodruff 32:17 wording 93:1	words 83:19 84:9,10,11 84:14 127:17 133:10 208:23 297:18 315:17 328:1 work 37:1 45:5 48:8,14 49:16 51:10,12,21 56:3 57:10 60:6 63:14 64:16 76:5 76:5,15 104:13,21 118:19 146:16 239:5 264:1 331:12 344:10 347:15 worked 37:7,11 60:14 workers 145:21,24 331:16 workgroups 345:11 working 55:23 103:3 221:3 331:15 workplace-related 328:8 works 70:10 world 145:15 240:5 worry 105:3 worth 100:7 wouldn't 36:1 42:20 85:18 141:8 167:2 224:9 293:15 340:22 writing 43:15 45:15 65:17 65:19 347:23 written 40:14 281:23 336:18 wrote 54:14	<hr/> X <hr/> Y <hr/> yeah 118:7 176:21 183:20,22 197:14 218:15 336:3 343:9 359:21 year 221:5 233:20 261:4 261:13,14,16 262:10 272:16 305:18 306:5,6,10 307:17,20 310:13 years 23:19 37:2 75:2 96:5 130:24 147:23 168:9,9 212:16 250:12 255:12 261:4,5,5 261:10,10 262:10 262:12,15,20 263:9,11,14 267:21 279:18 280:9,19 281:8 310:2,20 327:11 327:13 345:15 357:21,24 360:21 yes/no 272:17 Yessaian 69:5,11 <hr/> Z <hr/> Zellers 2:13 4:6 8:24,24 9:22 11:2,3 12:1 14:18 15:20 17:22 19:1 20:7,13 21:5 21:12,18 25:9 26:8,21 29:16 30:18 31:7 32:10 32:21 36:9 37:19 38:16 53:13 54:8 55:21 59:8 61:1 62:15 63:11 64:5 66:2 67:11 68:5
---	---	---	--	---

68:18 70:21 71:19	195:1,10,21 196:3	1	5:5	1:5
72:1 73:12,14,23	197:6,23 198:18	5:4 10:16,18 12:11	112	163
74:5,13,23 75:19	199:21 200:8	12:19 89:4 114:13	3:3	6:7
78:8,16 79:3	201:13 202:12	130:13 148:16	1170	16th
80:21 81:17,23	203:15,23 204:22	178:15 223:9	2:10	39:5
82:21 84:8,22	205:14,16 207:8	226:3 229:18	12	17
85:20 87:1,6,20	207:15 209:14	260:17 332:5	5:19 32:18,19,22	6:6 159:20,21
88:15 89:1,9 92:1	210:2,17 212:4	357:7 358:16	60:9 250:12 297:9	160:3 283:3
92:4,11,20 93:3	215:3 216:15	1,000	12/18	174
94:17 95:5 97:11	218:12 219:19	227:7	5:15	113:9
98:6,23 99:11	221:4 222:12,24	1.19	12:32	177
106:20 107:18	223:11,20 224:3	276:21	177:1,2	113:9
108:14 110:1	225:2,17 226:15	1.2	120	18
111:4 112:4,24	228:7,17 229:9,16	332:10	226:2	6:7 163:2,3
113:7,11,20 114:9	232:7,23 233:6	1.3	1215	180
117:7 119:9	234:3,4,13,19	232:14,24 235:23	163:20	45:18 347:14
120:16 121:1,15	235:10 236:10,13	236:14 333:17	1216	1800
121:17 123:15	237:6,13 238:6	334:5	163:11	3:4
124:19 127:22	239:10 240:18	1.63	124	18th
128:11,20 129:3	241:21,23 242:8	276:23	6:2	30:14
130:7 132:4	242:13 243:5,16	1.74	13	19
133:17 136:10	243:21,22 244:11	145:19	5:21 36:4,7,12	1:11 5:2 6:8 8:2
138:3 140:17,19	246:15 247:11,17	1/1/14	130	94:15 192:11,14
141:2 142:3	248:4 249:5	5:16	6:4	19103
143:20 144:5	250:14 251:3	1:38	14	2:21
145:1 147:8 148:9	252:11 253:4,13	177:3,5	5:22 98:20,21,24	192
149:2 150:12	254:12 258:3,20	10	99:7 130:24	6:8
151:7,22 152:8	259:12 261:2	5:4,16 31:4,5 33:18	14,000	195
153:7,18 154:10	262:1 263:15	218:20 219:5	306:9	6:10
155:15,21 157:4	264:3,13 267:6,22	229:22 297:9	148	1952
157:12 158:16	269:1 270:2,9	10%	7:3,5	5:13 28:24
159:1,14 160:1	271:3,7 276:1,12	56:7	14th	1970s
161:8,11 162:18	276:19 277:12	10:37	37:18	167:14
163:5 164:3,11,22	279:2 282:11,21	89:4,5	15	1974
165:7,11,14,16	283:23 284:5	10:55	5:5 6:2 109:8,11	5:19 32:15
167:20 168:1,12	289:8 343:6	89:6,8	111:5 124:16,17	1979
168:19 170:17	359:14,18 363:16	100	146:23 246:1,6	6:4 129:12
171:5,22 172:10	zero	3:13	259:5	1982
172:20 173:11	312:2	100%	150	145:13
174:11,19 175:12	Zurbenko	306:21 307:22	45:18 347:14	1984
176:4,19,23 177:6	282:19	100C	159	77:14
178:5,8 179:7	<hr/>	291:20	6:6	1990s
180:1 181:11	0	11	15th	37:10
182:7 184:23	07962	5:18 17:24 18:18	26:1 37:18	1991
185:16 186:16	3:9	24:23 32:7,8	16	5:18 31:13,21
188:13 190:6	<hr/>	33:10 297:9	6:4 18:19 130:2,3	1992
192:7,13 193:15	1	11/16/18	16-2738	255:7

19th 8:7 136:20 1st 30:21,24 218:21 <hr/> 2 2 4:2 5:5 15:17,18,21 16:4,16 17:10,15 22:10 43:14 54:22 65:12 89:8 108:15 109:1 177:1 221:17 272:6,21 346:14 2.53 145:23 2.96 145:17 20 6:10 112:16 168:9 195:22,23 196:5 259:16 260:7 261:5,5,10 262:15 262:20 263:11,14 279:17 280:8 281:8 332:6,13 367:16 20.0 332:7,9,10 2000 2:20 145:22 20004-1454 3:19 2001 127:4 2004 247:4 2006 203:12,22 2007 6:14 127:4 250:12 287:5 2008 146:8 246:23 2009 26:1 2010	126:21 203:17 204:20 257:12 258:6,11 2011 6:6,7 159:16 163:2 2013 6:8 191:19 192:15 268:11,14,20 269:3 2014 30:21 31:1 33:19 218:21 220:4 222:7 271:21 272:13,16 273:12 273:17 274:1,12 274:13 277:3,23 2016 6:10,16 195:12 196:5 255:8,14 259:15,16 260:13 271:5,13 2017 6:13 242:15 2018 30:15 36:19 37:13 38:18 40:6 57:23 59:14 64:8 65:22 66:1 89:12 100:24 102:3 142:15 227:5 257:9 2019 1:11 5:2,9,10 8:2,7 26:10 94:9 364:23 202 3:19 21 5:6,7 6:11 113:9 225:14,15,20 293:2 21,000 306:7 210 3:5 130:22 213 2:16 215 2:21	216 3:14 163:10 22 6:13 242:24 243:1 364:23 22,000 307:22 22,000-something 307:21 225 6:11 23 6:14 247:3,8 234 2:4 24 6:16 69:6 184:15 185:1 255:12 271:1,4,12 243 6:13 247 6:14 25 6:17 108:15 289:8 289:9,23 26 5:9,10,12 267-0058 3:9 269-2343 2:5 27 67:20 68:9 69:4,8 271 6:16 2738 8:12 28 7:6 68:10 284 4:7 289 6:17 29 5:13 71:5 2A	226:16 2B 227:16,18 228:10 229:2,11,17,19 235:8,12 249:20 292:18,23 355:16 356:23 359:24 2B-classified 357:10 <hr/> 3 3 5:6 21:3,6 57:19 58:2,21 65:1 70:24 177:5 196:21 223:1,2,13 227:6 253:8 290:23 3,000 233:22 305:17 306:18 3.3.1 112:14 3:06 253:8,9 3:19 253:10,12 30 5:15 11:8 55:5 56:13 71:5 109:8 109:11,19 111:5 246:1 259:6 308:8 364:11 365:16 30-day 44:24 30% 84:18 211:4 231:3 232:13 233:17 306:12,13,15 307:6 308:13 309:13 310:5 31 5:16 32 5:18,19 334 2:5	337 196:16,20 197:5,9 260:17 339 196:17,20 34% 273:15,19 275:1 34.4 274:15 275:1 343 4:8 35 11:8 55:5 56:13 164:12 350 3:8 351 278:3 36 5:21 36.5 274:2 275:5,15 36103-4160 2:5 364 4:10 365 2:9 366 4:11 367 4:12 368 4:13 3rd 26:10 <hr/> 4 4 5:7 21:10,13,20,23 24:24 34:15,24 66:21 68:10 69:4 69:8 71:6 126:8 178:16 220:16 221:13 224:11,11 227:1,9 253:12 272:21 282:22
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Exhibit 102

Judith Zelikoff, Ph.D.

Page 1

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF NEW JERSEY

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IN RE: JOHNSON & :
JOHNSON TALCUM POWDER :
PRODUCTS MARKETING, :
SALES PRACTICES, AND : NO. 16-2738
PRODUCTS LIABILITY : (FLW) (LHG)
LITIGATION :

THIS DOCUMENT RELATES :
TO ALL CASES :

- - -

January 21, 2019

- - -

Videotaped deposition of
JUDITH ZELIKOFF Ph.D., taken pursuant to
notice, was held at the Sheraton Mahwah
Hotel, 1 International Boulevard, Mahwah,
New Jersey, beginning at 9:11 a.m., on
the above date, before Michelle L. Gray,
a Registered Professional Reporter,
Certified Shorthand Reporter, Certified
Realtime Reporter, and Notary Public.

- - -

GOLKOW LITIGATION SERVICES
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deps@golkow.com

Judith Zelikoff, Ph.D.

Page 2	Page 4
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Page 3	Page 5
<p>1 APPEARANCES: (Cont'd)</p> <p>2</p> <p>3 SHOOK, HARDY & BACON, LLP</p> <p>4 BY: MARK C HEGARTY, ESQ</p> <p>5 2555 Grand Boulevard</p> <p>6 Kansas City, MO 64108</p> <p>7 (816) 474-6550</p> <p>8 Mhegarty@shb.com</p> <p>9 - and -</p> <p>10 SKADDEN ARPS, LLP</p> <p>11 BY: BENJAMIN S HALPERIN, ESQ</p> <p>12 4 Times Square</p> <p>13 New York, New York 10036</p> <p>14 (212) 735-2453</p> <p>15 Benjamin.halperin@skadden.com</p> <p>16 Representing the Defendant, Johnson</p> <p>17 & Johnson entities</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p> <p>26</p> <p>27</p> <p>28</p> <p>29</p> <p>30</p> <p>31</p> <p>32</p> <p>33</p> <p>34</p> <p>35</p> <p>36</p> <p>37</p> <p>38</p> <p>39</p> <p>40</p> <p>41</p> <p>42</p> <p>43</p> <p>44</p> <p>45</p> <p>46</p> <p>47</p> <p>48</p> <p>49</p> <p>50</p> <p>51</p> <p>52</p> <p>53</p> <p>54</p> <p>55</p> <p>56</p> <p>57</p> <p>58</p> <p>59</p> <p>60</p> <p>61</p> <p>62</p> <p>63</p> <p>64</p> <p>65</p> <p>66</p> <p>67</p> <p>68</p> <p>69</p> <p>70</p> <p>71</p> <p>72</p> <p>73</p> <p>74</p> <p>75</p> <p>76</p> <p>77</p> <p>78</p> <p>79</p> <p>80</p> <p>81</p> <p>82</p> <p>83</p> <p>84</p> <p>85</p> <p>86</p> <p>87</p> <p>88</p> <p>89</p> <p>90</p> <p>91</p> <p>92</p> <p>93</p> <p>94</p> <p>95</p> <p>96</p> <p>97</p> <p>98</p> <p>99</p> <p>100</p> <p>101</p> <p>102</p> <p>103</p> <p>104</p> <p>105</p> <p>106</p> <p>107</p> <p>108</p> <p>109</p> <p>110</p> <p>111</p> <p>112</p> <p>113</p> <p>114</p> <p>115</p> <p>116</p> <p>117</p> <p>118</p> <p>119</p> <p>120</p> <p>121</p> <p>122</p> <p>123</p> <p>124</p> <p>125</p> <p>126</p> <p>127</p> <p>128</p> <p>129</p> <p>130</p> <p>131</p> <p>132</p> <p>133</p> <p>134</p> <p>135</p> <p>136</p> <p>137</p> <p>138</p> <p>139</p> <p>140</p> <p>141</p> <p>142</p> <p>143</p> <p>144</p> <p>145</p> <p>146</p> <p>147</p> <p>148</p> <p>149</p> <p>150</p> <p>151</p> <p>152</p> <p>153</p> <p>154</p> <p>155</p> <p>156</p> <p>157</p> <p>158</p> <p>159</p> <p>160</p> <p>161</p> <p>162</p> <p>163</p> <p>164</p> <p>165</p> <p>166</p> <p>167</p> <p>168</p> <p>169</p> <p>170</p> <p>171</p> <p>172</p> <p>173</p> <p>174</p> <p>175</p> <p>176</p> <p>177</p> <p>178</p> <p>179</p> <p>180</p> <p>181</p> <p>182</p> <p>183</p> <p>184</p> <p>185</p> <p>186</p> <p>187</p> <p>188</p> <p>189</p> <p>190</p> <p>191</p> <p>192</p> <p>193</p> <p>194</p> <p>195</p> <p>196</p> <p>197</p> <p>198</p> <p>199</p> <p>200</p> <p>201</p> <p>202</p> <p>203</p> <p>204</p> <p>205</p> <p>206</p> <p>207</p> <p>208</p> <p>209</p> <p>210</p> <p>211</p> <p>212</p> <p>213</p> <p>214</p> <p>215</p> <p>216</p> <p>217</p> <p>218</p> <p>219</p> <p>220</p> <p>221</p> <p>222</p> <p>223</p> <p>224</p> <p>225</p> <p>226</p> <p>227</p> <p>228</p> <p>229</p> <p>230</p> <p>231</p> <p>232</p> <p>233</p> <p>234</p> <p>235</p> <p>236</p> <p>237</p> <p>238</p> <p>239</p> <p>240</p> <p>241</p> <p>242</p> <p>243</p> <p>244</p> <p>245</p> <p>246</p> <p>247</p> <p>248</p> <p>249</p> <p>250</p> <p>251</p> <p>252</p> <p>253</p> <p>254</p> <p>255</p> <p>256</p> <p>257</p> <p>258</p> <p>259</p> <p>260</p> <p>261</p> <p>262</p> <p>263</p> <p>264</p> <p>265</p> <p>266</p> <p>267</p> <p>268</p> <p>269</p> <p>270</p> <p>271</p> <p>272</p> <p>273</p> <p>274</p> <p>275</p> <p>276</p> <p>277</p> <p>278</p> <p>279</p> <p>280</p> <p>281</p> <p>282</p> <p>283</p> <p>284</p> <p>285</p> <p>286</p> <p>287</p> <p>288</p> <p>289</p> <p>290</p> <p>291</p> <p>292</p> <p>293</p> <p>294</p> <p>295</p> <p>296</p> <p>297</p> <p>298</p> <p>299</p> <p>300</p> <p>301</p> <p>302</p> <p>303</p> <p>304</p> <p>305</p> <p>306</p> <p>307</p> <p>308</p> <p>309</p> <p>310</p> <p>311</p> <p>312</p> <p>313</p> <p>314</p> <p>315</p> <p>316</p> <p>317</p> <p>318</p> <p>319</p> <p>320</p>	

Judith Zelikoff, Ph.D.

Page 6				Page 8			
1	---			1	---		
2	EXHIBITS (Cont'd)			2	EXHIBITS (Cont'd)		
3	---			3	---		
4				4			
5	NO DESCRIPTION PAGE			5	NO DESCRIPTION PAGE		
6	Zelikoff-6 Notice of Deposition Of Dr Zelikoff 50			6	Zelikoff-23 Ovarian, Fallopian Tube, and Primary Peritoneal Cancer Prevention NCI 393		
7	Zelikoff-7 Thumb Drive 53			7			
8	Zelikoff-8 Molecular Basis Supporting the Association of Talcum Powder Use with Increased Risk of Ovarian Cancer (Saed) 55			8			
9				9	Zelikoff-24 (Skipped)		
10				10	Zelikoff-25 Comparison of Quotes with Cancer Research How Cancer Starts 125		
11				11			
12	Zelikoff-9 Data Screening Assessment 12/2018 57			12	Zelikoff-26 Comparison of Quotes with Safety Assessment of Talc as Used in Cosmetics 125		
13				13			
14	Zelikoff-10 Systematic Review and Meta-Analysis Of the Association Between Perineal Use of Talc And Risk of Ovarian Cancer (Taher) 60			14			
15				15	Zelikoff-27 Comparison of Quotes with CSEM 125		
16				16			
17				17	Zelikoff-28 Comparison of Quotes with NIH Public Access Chromium Toxicity 125		
18				18			
19	Zelikoff-11 Exhibit C Listing of Bates Numbered Documents 62			19	Zelikoff-29 Comparison of Quotes with IARC Monograph 125		
20				20			
21	Zelikoff-12 Academic Integrity For Students at NYU 78			21			
22				22			
23	Zelikoff-13 Comparison of Quotes with Shawn Levy 83			23			
24				24			
Page 7				Page 9			
1	---			1	---		
2	EXHIBITS (Cont'd)			2	EXHIBITS (Cont'd)		
3	---			3	---		
4				4			
5	NO DESCRIPTION PAGE			5	NO DESCRIPTION PAGE		
6	Zelikoff-14 Comparison of Quotes with Smith-Bindman 88			6	Zelikoff-30 Comparison of Quotes with NIH Public Access Environmental Toxicants 125		
7				7			
8	Zelikoff-15 Comparison of Quotes with Genetics Home Reference 92			8			
9				9	Zelikoff-31 Comparison of Quotes with Peters 125		
10	Zelikoff-16 Comparison of Quotes with Simone Reuter 102			10			
11				11			
12	Zelikoff-17 Comparison of Quotes with Environmental Chemistry com 106			12	Zelikoff-32 Comparison of Quotes with Trabert 125		
13				13			
14	Zelikoff-18 Comparison of Quotes with Rakoff-Nahoum 115			14	Zelikoff-33 Response Letter To Citizen's Petition 4/1/14 430		
15				15			
16	Zelikoff-19 Comparison of Quotes with Health Effects 119			16	Zelikoff-34 Perineal Talc Use And Ovarian Cancer (Penninkilampi) 398		
17				17			
18	Zelikoff-20 Why Cancer Inflammation? (Rakoff-Nahoum) 118			18	Zelikoff-35 Consumer Talcums And Powders (Rohl) 405		
19				19			
20	Zelikoff-21 Comparison of Quotes with Kasprzak 121			20	Zelikoff-36 Arsenic, Metals Fibres Excerpt (IARC Monograph) 457		
21				21			
22	Zelikoff-22 Curriculum Vitae Of Dr Zelikoff 175			22			
23				23	Zelikoff-37 Ingredients Talc 454		
24				24			

3 (Pages 6 to 9)

Judith Zelikoff, Ph.D.

Page 10				Page 12			
1	- - -			1	- - -		
2	EXHIBITS (Cont'd.)			2	DEPOSITION SUPPORT INDEX		
3	- - -			3	- - -		
4				4			
5	NO. DESCRIPTION PAGE			5	Direction to Witness Not to Answer		
6	Zelikoff-38 Talcum Powder 469			6	PAGE LINE		
7	Chronic Pelvic Inflammation (Merritt)			7	None.		
8				8	Request for Production of Documents		
9	Zelikoff-39 Markers of Inflammation And Risk (Wu)	471		9	PAGE LINE		
10				10	None.		
11	Zelikoff-40 Binder Labeled Saad 2010 - Zambelli 2013	480		11	Stipulations		
12				12	PAGE LINE		
13	Zelikoff-41 Binder Labeled Production Documents	480		13	None.		
14				14	Questions Marked		
15	Zelikoff-42 Binder Labeled Depositions ACGIH 2010 - Frank & Jorge 2011	480		15	PAGE LINE		
16				16	None.		
17	Zelikoff-43 Binder Labeled IARC 1977 - IARC 2006	480		17			
18				18			
19	Zelikoff-44 Binder Labeled Gamble 1979 - IARC 1976	480		19			
20				20			
21	Zelikoff-45 Binder Labeled Ingersoll 2011 - Marconi 1990	480		21			
22				22			
23				23			
24				24			
Page 11				Page 13			
1	- - -			1	THE VIDEOGRAPHER: We are on		
2	EXHIBITS (Cont'd.)			2	the record. My name is Henry		
3	- - -			3	Marte. I am a videographer with		
4				4	Golkow Litigation Services.		
5	NO. DESCRIPTION PAGE			5	Today is January 21st, 2019,		
6	Zelikoff-46 Binder Labeled Mattenklott 2007 - Rossi 2009	480		6	and the time is 9:11 a.m.		
7				7	This video deposition is		
8	Zelikoff-47 Binder Labeled IARC 2009 - IARC, 2012	480		8	being held in Mahwah, New Jersey,		
9				9	in the matter of Talcum Powder		
10	Zelikoff-48 Alterations in Gene Expression In Human Mesothelial Cells (Shukla)	481		10	Litigation.		
11				11	The deponent today is Dr.		
12	Zelikoff-49 Experts of Transcript 549 Of Robert Glenn 10/18/18			12	Judith Zelikoff.		
13				13	All appearances will be		
14	Zelikoff-50 Presence of Talc in Pelvic Lymph Nodes of a Woman (Cramer)	562		14	noted on the stenographic record.		
15				15	Will the court reporter please		
16				16	administer the oath to the		
17				17	witness.		
18	Zelikoff-51 Does Long-Term Talc Exposure Have a Carcinogenic Effect (Keskin)	567		18	- - -		
19				19	... JUDITH ZELIKOFF, Ph.D.,		
20				20	having been first duly sworn, was		
21				21	examined and testified as follows:		
22				22	- - -		
23				23	EXAMINATION		
24				24	- - -		

4 (Pages 10 to 13)

Judith Zelikoff, Ph.D.

Page 14	Page 16
<p>1 BY MR. HEGARTY: 2 Q. Good morning, Dr. Zelikoff. 3 A. Good morning. 4 Q. My name is Mark Hegarty. I 5 represent the J&J defendants in this 6 action. Can you please state your full 7 name for the record, please? 8 A. Judith Terri Zelikoff. 9 Q. Dr. Zelikoff, who is your 10 current employer? 11 A. New York University School 12 of Medicine, also known as NYU Langone 13 Health. 14 Q. What is your title at New 15 York University School of Medicine? 16 A. Professor with tenure. 17 Q. How long have you held that 18 position? 19 A. Since 1982. 20 Q. Do you have any separate 21 personal consulting business for 22 litigation purposes? 23 A. I do not. 24 Q. Where do the fees go that</p>	<p>1 plaintiffs' counsel for your services in 2 this litigation? 3 A. \$350 per hour. 4 Q. Is there any difference in 5 your rate depending on whether it's 6 literature review, sitting for a 7 deposition, trial testimony? 8 A. Sitting for a deposition or 9 trial testimony is \$450. 10 Q. Did anyone outside of 11 plaintiffs' attorneys assist you in any 12 way with your expert report in this case? 13 A. No one with my expert 14 report. 15 Q. We were provided today a 16 copy of several invoices that you have 17 prepared for your work in this case. I'm 18 going to mark as Exhibit Number 1 a copy 19 of those invoices. 20 (Document marked for 21 identification as Exhibit 22 Zelikoff-1.) 23 BY MR. HEGARTY: 24 Q. Dr. Zelikoff, would you look</p>
Page 15	Page 17
<p>1 you earn as an expert witness in this 2 case? 3 A. They go to household 4 expenses as well as charity. 5 Q. But they go to you, correct? 6 A. They go to me. 7 Q. Other than your work at New 8 York University and the fees that you're 9 earning as part of this litigation, do 10 you have any other sources of income? 11 A. Just income that I have from 12 advisory boards or -- when you -- when 13 you sit on panels, they also pay you. 14 But other than that, no. 15 Q. Tell me an example of an 16 advisory board for which you receive 17 income. 18 A. It's on a very sporadic 19 basis. And it depends on what it is. 20 But the NIEHS, National Institute of 21 Environmental Health Sciences. And it's 22 an NIH institute. And I serve as a -- I 23 review grants for them. 24 Q. What are you charging</p>	<p>1 at Exhibit Number 1 and tell me whether 2 those are all the invoices that you have 3 generated and provided to plaintiffs' 4 counsel in this case. 5 A. It appears to be. 6 Q. Thank you. The last work 7 noted is December 24, 2018. 8 Have you spent any 9 additional time on this case for which 10 you intend to bill plaintiffs' counsel -- 11 A. Yes, I have. 12 Q. -- that's not reflected in 13 the invoices? 14 A. Yes, I have. 15 Q. How much additional time? 16 A. Approximately 25 to 30 hours 17 by the end of this deposition. Not 18 including the deposition. 19 Q. With regard to these 20 invoices, have they all been paid? 21 A. Yes, they have. 22 Q. Were you paid a retainer for 23 your work on this case? 24 A. I don't recall.</p>

5 (Pages 14 to 17)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 18</p> <p>1 Q. Dr. Zelikoff, as you know 2 we're here to take your deposition in the 3 case of In Re Johnson & Johnson Talc 4 Litigation, which is an MDL setting. Are 5 you aware you've been designated as an 6 expert in that case? 7 A. I am aware. 8 Q. When were you first 9 contacted about serving as an expert in 10 this case? 11 A. Early 2017. I was 12 requested -- I was requested if I had 13 interest in it. 14 Q. The first invoice that you 15 provided has a date of April 5, 2017. 16 When in relation to the first invoice 17 entry was that initial contact? 18 A. To the best of my knowledge, 19 it was January or February. 20 Q. Of 2017? 21 A. Of 2017, right. 22 Q. Who contacted you? 23 A. Jennifer Emmel. 24 Q. Did you know her before she</p>	<p style="text-align: right;">Page 20</p> <p>1 representing plaintiffs? 2 A. No, sir. 3 Q. Did you agree to serve as an 4 expert witness at the time of Ms. Emmel's 5 first contact with you? 6 A. No, sir. I told her that I 7 would have to do some literature 8 searching myself and come up with a 9 conclusion as to whether or not I felt 10 comfortable based on the science in 11 serving in that capacity. 12 Q. At one point -- at what 13 point between -- at what point did you 14 come to or did -- strike that. 15 At what point did you agree 16 to serve as an expert witness in this 17 litigation in relation to that first 18 call? 19 A. Probably about a month 20 later. 21 Q. What did Ms. Emmel tell you 22 at that first call about the litigation? 23 MS. O'DELL: We just 24 instruct -- I mean conversations,</p>
<p style="text-align: right;">Page 19</p> <p>1 contacted you? 2 A. Not at all. 3 Q. How was the contact made, by 4 telephone? 5 A. By telephone. 6 Q. Apart from anything that 7 attorneys for plaintiffs may have told 8 you, do you know how she came to contact 9 you? 10 A. I'm not aware as to how she 11 came to contact me. 12 Q. Did you have any prior 13 litigation work with her? 14 A. Not with Ms. Emmel, no. 15 Q. How do you spell her name? 16 A. How do I -- 17 Q. Yes. 18 A. -- spell her name? 19 Q. Yes. 20 A. To the best of my knowledge, 21 it's E-M-M-E-L. 22 Q. Have you had any prior 23 litigation work with any of the lawyers 24 with whom you have met that are</p>	<p style="text-align: right;">Page 21</p> <p>1 in terms of -- let me just strike 2 that and say don't discuss 3 anything that you communicated to 4 us or we communicated to you after 5 you decided to become an expert in 6 the case. 7 BY MR. HEGARTY: 8 Q. Correct. I'm talking about, 9 right now I'm talking about that initial 10 phone call where you said you had not -- 11 where you did not agree at that point in 12 time to serve as an expert witness. 13 That's the only call I'm talking about. 14 What did Ms. Emmel tell you 15 about the litigation or about what they 16 wanted you to do at that first call? 17 A. Well, I don't remember the 18 details as it was about over a year ago. 19 But to the best of my knowledge and my 20 recollection, it was just that they 21 represented the plaintiffs in a case of 22 ovarian cancer and its relationship to 23 talcum powder products, and was I 24 familiar with it, did I know anything</p>

6 (Pages 18 to 21)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 22</p> <p>1 about it, and did I have -- did I have 2 interest in being associated with, and I 3 responded to her that I follow the 4 science, that's all I do is I follow the 5 science. 6 And if the science leads me 7 in a direction that I would have interest 8 or that I felt comfortable in doing this, 9 then I would let her know. 10 Q. What was your response when 11 she asked you if you were familiar with 12 the science of talc and ovarian cancer? 13 A. I was familiar with it at 14 that time in a superficial manner. I 15 work in a very high-powered department of 16 environmental medicine. And we discuss 17 current events over lunch. 18 Q. When you say in a 19 superficial manner, what do you mean? 20 A. Certainly not to the depth 21 that I'm aware of the issue currently. 22 Q. Is it correct that you had 23 not formed any opinions as to any link 24 between talc and ovarian cancer as of the</p>	<p style="text-align: right;">Page 24</p> <p>1 the time that you agreed to serve as an 2 expert witness in the case? 3 A. No, not -- not to my 4 recollection. 5 Q. Do you recall anything else 6 that you discussed with Ms. Emmel at that 7 first call besides what we talked about 8 already? 9 A. No, sir. 10 Q. Did Ms. Emmel at that first 11 call tell you anything about plaintiffs' 12 theory of causation or theory of 13 mechanism of action or biologic 14 plausibility? 15 A. No, sir, not at all. 16 Q. Did she send you any 17 documents before you agreed to serve as 18 an expert witness? 19 A. Not to my knowledge. I 20 think the -- I'm sure the literature 21 reviews that I did at that time were 22 solely my own. 23 Q. Had you heard of lawsuits 24 involving talc and ovarian cancer before</p>
<p style="text-align: right;">Page 23</p> <p>1 time of that first call with Ms. Emmel? 2 A. I had -- I had no opinion at 3 that time. 4 Q. Did you have any discussions 5 with Ms. Emmel or any other lawyer 6 representing plaintiffs between that 7 initial phone call and when you agreed to 8 serve as an expert witness? 9 A. To my -- to the best of my 10 knowledge, I had not spoken to 11 Ms. O'Dell. So to the best of my 12 knowledge it was just Ms. Emmel. 13 Q. Again, focusing on that 14 first phone call -- well, strike that. 15 Had you had any further 16 discussion with Ms. Emmel between the 17 time of that first call and the time you 18 agreed to serve as an expert witness? 19 A. I'm sorry, between the time 20 of the first call and the time I agreed, 21 could you repeat the question please? 22 Q. Sure. Did you have any 23 additional discussions with Ms. Emmel 24 between the time of the first call and</p>	<p style="text-align: right;">Page 25</p> <p>1 being contacted by Ms. Emmel? 2 A. I actually had not. 3 Q. What then were your sources 4 of knowledge about talc and ovarian 5 cancer as of the time of the first call? 6 A. The media, whatever I might 7 have read in the paper and any 8 discussions that might have been brought 9 up by my colleagues. 10 Q. Do you recall any colleague 11 who brought the -- anything up about talc 12 and ovarian cancer? 13 A. I do not recall a specific 14 colleague. Lunchroom chatter. 15 Q. Did you form any opinions 16 from the material you did read in the 17 media or from discussion with your 18 colleagues? 19 A. I had no opinion. 20 Q. And you were ultimately 21 retained and asked to give expert 22 opinions in this case, correct? 23 A. I was ultimately retained, 24 yes, correct.</p>

7 (Pages 22 to 25)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 26</p> <p>1 Q. The lawyers for the</p> <p>2 plaintiffs in this case have paid you to</p> <p>3 review materials and offer opinions,</p> <p>4 correct?</p> <p>5 MS. O'DELL: Objection to</p> <p>6 the form.</p> <p>7 THE WITNESS: Do I answer</p> <p>8 the question?</p> <p>9 BY MR. HEGARTY:</p> <p>10 Q. Yes.</p> <p>11 MS. O'DELL: Yes.</p> <p>12 THE WITNESS: They have</p> <p>13 remunerated me for my time and</p> <p>14 effort in reading hundreds of</p> <p>15 articles.</p> <p>16 BY MR. HEGARTY:</p> <p>17 Q. The opinions that you've</p> <p>18 formulated were ultimately set out in</p> <p>19 your November 16, 2018, MDL report,</p> <p>20 correct?</p> <p>21 A. That's correct.</p> <p>22 Q. The hours you spent in</p> <p>23 preparing that report are reflected in</p> <p>24 the invoices we marked as Exhibit</p>	<p style="text-align: right;">Page 28</p> <p>1 testify today?</p> <p>2 A. It would be in my invoice,</p> <p>3 but if I had to approximate that without</p> <p>4 the knowledge of having that in front of</p> <p>5 me, I would say 30 to 50 hours.</p> <p>6 Q. What attorneys did you meet</p> <p>7 with to prepare for your deposition here</p> <p>8 today?</p> <p>9 A. I met with Ms. O'Dell and</p> <p>10 Ms. Emmel.</p> <p>11 Q. Anyone else?</p> <p>12 A. In a face-to-face.</p> <p>13 Q. Face-to-face. There were</p> <p>14 phone calls as well?</p> <p>15 A. There were -- one of -- one</p> <p>16 of the phone calls, it may have been two.</p> <p>17 I also -- Chris, and I'm not familiar</p> <p>18 with your last name, sorry.</p> <p>19 Chris from the --</p> <p>20 MS. O'DELL: Tisi.</p> <p>21 THE WITNESS: Tisi? Chris</p> <p>22 Tisi and Alistair --</p> <p>23 MR. FINDEIS: Findeis.</p> <p>24 MS. O'DELL: Findeis.</p>
<p style="text-align: right;">Page 27</p> <p>1 Number 1, correct?</p> <p>2 A. I don't recall what exhibit</p> <p>3 number it is, but it is in one of the</p> <p>4 invoices.</p> <p>5 Q. A description that you have</p> <p>6 in your invoices includes report</p> <p>7 preparation. Is that a description which</p> <p>8 describes your -- the time you spent</p> <p>9 preparing your report?</p> <p>10 A. Yes, it is.</p> <p>11 Q. Every entry under report</p> <p>12 preparation would be the time that you</p> <p>13 spent preparing your report?</p> <p>14 A. Yes, that's true. That</p> <p>15 could include reading material, searching</p> <p>16 for material or writing.</p> <p>17 Q. The invoices we marked as an</p> <p>18 exhibit also reflect the time you spent</p> <p>19 with lawyers for plaintiffs; is that</p> <p>20 correct?</p> <p>21 A. It does.</p> <p>22 Q. With regard to your</p> <p>23 deposition here today, how much time did</p> <p>24 you spend preparing to come here and</p>	<p style="text-align: right;">Page 29</p> <p>1 THE WITNESS: Findeis -- was</p> <p>2 on the phone, and there may have</p> <p>3 been one or two others, but I</p> <p>4 don't recall.</p> <p>5 BY MR. HEGARTY:</p> <p>6 Q. Have you spoken with any of</p> <p>7 your colleagues about your work in this</p> <p>8 litigation?</p> <p>9 A. What -- can you explain what</p> <p>10 you mean by colleagues?</p> <p>11 Q. Well, you mentioned</p> <p>12 colleagues in discussing talc and ovarian</p> <p>13 cancer. So those colleagues.</p> <p>14 A. If -- do you mean other</p> <p>15 faculty?</p> <p>16 Q. Correct.</p> <p>17 A. And the question again,</p> <p>18 please?</p> <p>19 Q. Sure. Have you spoken with</p> <p>20 other faculty at New York University</p> <p>21 regarding your work on this litigation?</p> <p>22 A. No, I have not.</p> <p>23 Q. Have you told any faculty at</p> <p>24 New York University of your opinions in</p>

8 (Pages 26 to 29)

Judith Zelikoff, Ph.D.

Page 30	Page 32
<p>1 this case?</p> <p>2 A. I have not.</p> <p>3 Q. Have you told anyone at NYU</p> <p>4 School of Medicine of your opinions?</p> <p>5 A. I have not. I have</p> <p>6 discussed, not my opinion, but in my</p> <p>7 class, my toxicology course, to graduate</p> <p>8 students at NYU.</p> <p>9 I have, in my course on</p> <p>10 speaking about reproductive toxicology</p> <p>11 and developmental toxicology, in</p> <p>12 discussing risk factors, two graduate</p> <p>13 students I have discussed -- I've</p> <p>14 included talc as a potential risk factor.</p> <p>15 Q. When did you start including</p> <p>16 talc as a potential risk factor in that</p> <p>17 course?</p> <p>18 A. Prior -- if you're asking me</p> <p>19 was it prior to or -- prior to my</p> <p>20 retainment, it was prior to my</p> <p>21 retainment.</p> <p>22 Q. So prior to your</p> <p>23 retainment -- let me -- let me word it</p> <p>24 differently.</p>	<p>1 A. Yes.</p> <p>2 Q. Does that continue to be the</p> <p>3 extent of any discussion you had with any</p> <p>4 students at New York University about</p> <p>5 talc and ovarian cancer?</p> <p>6 A. Well, right now we're on</p> <p>7 break. I -- I probably will -- I will</p> <p>8 continue after the deposition to also</p> <p>9 talk -- talk with them and list it as</p> <p>10 a -- as a risk factor for ovarian cancer.</p> <p>11 Q. What about -- strike that.</p> <p>12 Did you have discussions,</p> <p>13 that same discussion with toxicology</p> <p>14 students between -- I should say before</p> <p>15 you were contacted by Ms. Emmel and</p> <p>16 today, have you had -- continued to have</p> <p>17 that same discussion with your toxicology</p> <p>18 students?</p> <p>19 A. I've not --</p> <p>20 MS. O'DELL: Objection to</p> <p>21 form.</p> <p>22 Doctor, give me just a</p> <p>23 moment after the question if I</p> <p>24 need to object. Thank you.</p>
Page 31	Page 33
<p>1 Prior to the call from</p> <p>2 Ms. Emmel, you had included in your</p> <p>3 course to -- your toxicology course a</p> <p>4 discussion about talc and ovarian cancer?</p> <p>5 A. Not a discussion, just</p> <p>6 didactic lecture saying that this is the</p> <p>7 female reproductive tract. Ovarian</p> <p>8 cancer is part of an adverse outcome of</p> <p>9 disease. It's very prevalent. And there</p> <p>10 are factors including early menarche,</p> <p>11 late menopause, and there's some issues</p> <p>12 currently on the table as to whether</p> <p>13 cosmetic talc also plays a role.</p> <p>14 No opinion was given to my</p> <p>15 class. Just information.</p> <p>16 Q. Do you have any materials</p> <p>17 for your course, whether in PowerPoint</p> <p>18 form or other form that sets out that</p> <p>19 discussion you just had?</p> <p>20 A. No.</p> <p>21 Q. Is that the extent of the</p> <p>22 discussion that you had with your</p> <p>23 toxicology students about talc and</p> <p>24 ovarian cancer?</p>	<p>1 THE WITNESS: Shall I</p> <p>2 continue?</p> <p>3 BY MR. HEGARTY:</p> <p>4 Q. Sure.</p> <p>5 A. Could you repeat the</p> <p>6 question, please?</p> <p>7 Q. Sure. You mentioned that</p> <p>8 the discussion that we just went over was</p> <p>9 before your contact by Ms. Emmel,</p> <p>10 correct?</p> <p>11 A. I said that it started. My</p> <p>12 lectures started prior to my conversation</p> <p>13 with Ms. Emmel.</p> <p>14 Q. What was -- what was the</p> <p>15 name of the course that you had that</p> <p>16 lecture?</p> <p>17 A. Organ system toxicology.</p> <p>18 Q. Have you taught that course</p> <p>19 since your call with Ms. Emmel?</p> <p>20 A. Actually it's coming up</p> <p>21 this -- this semester, starting the 30th</p> <p>22 of January.</p> <p>23 Q. So between -- as of the</p> <p>24 first part of 2017 through today you have</p>

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 34</p> <p>1 not taught that same course?</p> <p>2 A. It's taught every other</p> <p>3 year.</p> <p>4 Q. Have you communicated with</p> <p>5 anyone outside of plaintiffs' counsel in</p> <p>6 this case about your opinions in your</p> <p>7 report?</p> <p>8 A. Not about my opinions, no.</p> <p>9 Q. Have you talked with anyone</p> <p>10 outside of plaintiffs' counsel in this</p> <p>11 case about your report?</p> <p>12 A. Only to say that I -- to my</p> <p>13 friends, when I refuse to go anywhere</p> <p>14 with them, because I have to stay home</p> <p>15 and work, only to say that I'm working on</p> <p>16 a report.</p> <p>17 Q. Have you discussed the</p> <p>18 litigation or your report with any other</p> <p>19 experts retained by the plaintiffs in</p> <p>20 this case?</p> <p>21 A. No, sir, I have not.</p> <p>22 Q. Have you reviewed any of the</p> <p>23 other plaintiffs' experts' MDL reports in</p> <p>24 this litigation besides those referenced</p>	<p style="text-align: right;">Page 36</p> <p>1 Exhibit B. It should be the very last</p> <p>2 page of that document.</p> <p>3 A. Thank you.</p> <p>4 Q. The very last page of</p> <p>5 Exhibit B of your report, you list a</p> <p>6 number of expert reports, correct?</p> <p>7 A. I do. Deposition and</p> <p>8 exhibits.</p> <p>9 Q. Have you reviewed any other</p> <p>10 expert reports -- strike that.</p> <p>11 Did you review any other</p> <p>12 expert reports for purposes of your</p> <p>13 expert report besides those listed here?</p> <p>14 A. No, sir. Unless --</p> <p>15 Dr. Longo, December 2018 supplement, that</p> <p>16 was a report, and I did review that.</p> <p>17 Q. We were provided today with</p> <p>18 a copy of a report of Longo and Rigler,</p> <p>19 January 15, 2019. And I'm going to mark</p> <p>20 that as Exhibit 3.</p> <p>21 (Document marked for</p> <p>22 identification as Exhibit</p> <p>23 Zelikoff-3.)</p> <p>24 BY MR. HEGARTY:</p>
<p style="text-align: right;">Page 35</p> <p>1 in your report?</p> <p>2 A. I reviewed Dr. Dydek's. I</p> <p>3 reviewed -- did you say the plaintiffs'</p> <p>4 witnesses?</p> <p>5 Q. Yeah, let me -- let me -- in</p> <p>6 your report -- and I can -- we can get it</p> <p>7 out here in a moment. But you list</p> <p>8 the -- in your list of reports, you list</p> <p>9 the report of Michael Crowley.</p> <p>10 A. I'm sorry, sir. Can you --</p> <p>11 Q. It's in Exhibit B at the end</p> <p>12 of Exhibit B of your report. If you need</p> <p>13 a copy I can give it to you now.</p> <p>14 A. Can you give me a copy.</p> <p>15 (Document marked for</p> <p>16 identification as Exhibit</p> <p>17 Zelikoff-2.)</p> <p>18 BY MR. HEGARTY:</p> <p>19 Q. I'm marking Exhibit 2 Dr.</p> <p>20 Zelikoff's report that was provided to us</p> <p>21 in this case.</p> <p>22 A. Thank you. And what page</p> <p>23 are you referring to?</p> <p>24 Q. It is the last page of</p>	<p style="text-align: right;">Page 37</p> <p>1 Q. Is that the supplemental</p> <p>2 report that you described for us?</p> <p>3 A. It is, sir. It's an</p> <p>4 analysis Johnson & Johnson Historical</p> <p>5 Product Containers and Imerys' Historical</p> <p>6 Railroad Car Samples, etc..</p> <p>7 Q. That report is dated</p> <p>8 January 15th, 2019, correct?</p> <p>9 A. Yes, sir.</p> <p>10 Q. When did you receive this</p> <p>11 report?</p> <p>12 A. In January.</p> <p>13 Q. When in relation to</p> <p>14 January 15, 2019?</p> <p>15 A. Today is the --</p> <p>16 Q. Is the 21st.</p> <p>17 A. Today is the 21st. I would</p> <p>18 say somewhere between the 15th and the</p> <p>19 21st. Actually it was this past Saturday</p> <p>20 as it was placed in my Dropbox and I</p> <p>21 could not open my Dropbox.</p> <p>22 Q. When did you review Exhibit</p> <p>23 Number 3?</p> <p>24 A. That same report?</p>

10 (Pages 34 to 37)

Judith Zelikoff, Ph.D.

Page 38	Page 40
<p>1 Q. Yes.</p> <p>2 A. I received it on Saturday.</p> <p>3 I reviewed it on Sunday.</p> <p>4 Q. How much time did you spend</p> <p>5 reviewing this additional Longo and</p> <p>6 Rigler report?</p> <p>7 A. Sorry. About three hours.</p> <p>8 Q. Did you read every page?</p> <p>9 A. I read -- I reviewed each</p> <p>10 page but I did not scrutinize every page.</p> <p>11 Q. Did you read the entirety of</p> <p>12 the text in this supplemental report?</p> <p>13 A. May I see the report,</p> <p>14 please.</p> <p>15 MS. O'DELL: Objection.</p> <p>16 Asked and answered. That's the</p> <p>17 same question.</p> <p>18 THE WITNESS: Should I</p> <p>19 answer?</p> <p>20 MS. O'DELL: Yes, you may.</p> <p>21 THE WITNESS: I reviewed the</p> <p>22 text going up to Page 32 with</p> <p>23 greater rigor than I did the</p> <p>24 tables.</p>	<p>1 A. The attorneys.</p> <p>2 Q. I'm going to show you --</p> <p>3 A. Plaintiffs' attorneys.</p> <p>4 (Document marked for</p> <p>5 identification as Exhibit</p> <p>6 Zelikoff-4.)</p> <p>7 BY MR. HEGARTY:</p> <p>8 Q. I'm going to show you what I</p> <p>9 marked as Exhibit Number 4. This is the</p> <p>10 MDL report provided to us for Michael</p> <p>11 Crowley.</p> <p>12 A. Mm-hmm.</p> <p>13 Q. Did you read the entirety of</p> <p>14 that report?</p> <p>15 A. I cannot say that I read the</p> <p>16 entirety of this report. I reviewed the</p> <p>17 report.</p> <p>18 Q. Okay. Well, your report is</p> <p>19 dated November 16, 2018. And that report</p> <p>20 is dated November 12, 2012, -- 2018.</p> <p>21 When did you receive the report by</p> <p>22 Dr. Crowley in relation to the date on</p> <p>23 the first page, November 12th.</p> <p>24 A. I really cannot say with</p>
Page 39	Page 41
<p>1 BY MR. HEGARTY:</p> <p>2 Q. When you say "reviewed,"</p> <p>3 does that mean that you read every -- all</p> <p>4 the words on every page up to Page 32?</p> <p>5 A. I did.</p> <p>6 Q. You included in the list of</p> <p>7 reports that you reviewed, the report of</p> <p>8 Michael Crowley, correct?</p> <p>9 A. Every one of the reports</p> <p>10 were not read with the -- read with</p> <p>11 the -- sorry, I'm caught up in the</p> <p>12 microphone -- were not read with the same</p> <p>13 intensity and duration of time put into</p> <p>14 it. I reviewed it. To what extent, I'm</p> <p>15 not clear at this moment.</p> <p>16 Q. The first report that you</p> <p>17 list in the list of reports in Exhibit B</p> <p>18 is the expert report of Michael M.</p> <p>19 Crowley, correct?</p> <p>20 A. It's written that way, yes.</p> <p>21 Q. Did you prepare this list of</p> <p>22 reports?</p> <p>23 A. I did not.</p> <p>24 Q. Who did?</p>	<p>1 certainty. It seems to me that I</p> <p>2 received this prior to my report</p> <p>3 conclusion.</p> <p>4 Q. There are 212 pages there.</p> <p>5 Again, did you read every word of every</p> <p>6 page?</p> <p>7 A. No, sir. Did I look at</p> <p>8 every word of every page? Yes.</p> <p>9 Q. No, my question is did you</p> <p>10 read every word of every page.</p> <p>11 A. My answer is --</p> <p>12 MS. O'DELL: She answered</p> <p>13 your question.</p> <p>14 THE WITNESS: -- I looked at</p> <p>15 every page.</p> <p>16 BY MR. HEGARTY:</p> <p>17 Q. Did you read all the</p> <p>18 references that he has in that report?</p> <p>19 A. I looked at the references.</p> <p>20 Q. Did you actually pull the</p> <p>21 references and read the citations that he</p> <p>22 refers to?</p> <p>23 A. No, sir. I did my own -- my</p> <p>24 own literature search in terms of</p>

11 (Pages 38 to 41)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 42</p> <p>1 fragrance and chemicals within the 2 fragrances. And I did receive that as an 3 exhibit this morning. 4 Q. I'm sorry. What did you 5 say? 6 A. I said I did my own 7 literature search in terms of fragrances, 8 and I think you received a copy of that 9 this morning. In that report that I did, 10 that I prepared, I was assessing 11 carcinogenicity of each of the compounds. 12 Q. Going back to the Crowley 13 report, did you read all the tables in 14 that report? 15 A. I did not read. I reviewed. 16 Q. What is -- 17 A. I looked at them. 18 Q. Okay. What is the 19 difference between reading and reviewing 20 to you? 21 A. In my mind, reading is 22 in-depth assessment, and whereas 23 reviewing is looking over. Reading is 24 more intense.</p>	<p style="text-align: right;">Page 44</p> <p>1 Dr. Crowley's report. And with that I -- 2 I used the case number. I reviewed each 3 one of the chemicals in terms of their 4 potential carcinogenicity by, number one, 5 putting -- writing down the chemical, 6 looking to see if there were other 7 structures or chemicals -- or chemicals 8 that had similar names. 9 I reviewed through Google, 10 through PubMed and through Tox Lit and 11 IARC reports to see whether or not there 12 was a listing for them in terms of 13 carcinogenicity. And that is the result. 14 This is the result. 15 Q. When did you do all of that? 16 A. I did that post the 17 report -- 18 Q. When -- sorry. 19 A. -- as part of my preparation 20 for the deposition. 21 Q. When did you do it post 22 report in relation to today? 23 A. One to two weeks ago. 24 Q. Did you review -- strike</p>
<p style="text-align: right;">Page 43</p> <p>1 Q. You pointed to us -- pointed 2 to us -- strike that. 3 You pointed to the document 4 that was provided to us this morning, 5 which you say is -- what I think you said 6 reflects your own literature search with 7 regard to fragrances; is that correct? 8 A. Mine and a student. 9 Q. What student? 10 A. A graduate student in my 11 laboratory. 12 (Document marked for 13 identification as Exhibit 14 Zelikoff-5.) 15 BY MR. HEGARTY: 16 Q. I've marked as Exhibit 17 Number 5 the document that was produced 18 to us this morning. Can you tell me what 19 Exhibit Number 5 is. 20 A. Exhibit Number 5 is -- is a 21 list of the chemicals that -- part of 22 which, if not in its entirety, were taken 23 from the fragrances that were -- and the 24 chemicals that were listed in</p>	<p style="text-align: right;">Page 45</p> <p>1 that. 2 Did you read all the MSDSes 3 that you list in Exhibit Number 5? 4 A. I did not read all of the 5 MSDSes. But I did look at them. I 6 reviewed them to make sure they were 7 accurate. 8 Q. Did you -- did you look at 9 and review every MSDS listed in Exhibit 10 Number 5? 11 A. No, sir. 12 Q. I'm sorry? 13 A. No, sir. 14 Q. Approximately how many did 15 you look at in review? 16 A. I would say I looked at 17 perhaps half. Looked -- looked at, not 18 reviewed. 19 Q. But with regard to your 20 analysis of the fragrances that are 21 reportedly in Johnson's Baby Powder, you 22 did not do any of your own analysis as of 23 the time of your report, correct? 24 A. I --</p>

12 (Pages 42 to 45)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 46</p> <p>1 MS. O'DELL: Objection to 2 the form. 3 THE WITNESS: I did no 4 analysis except to gather the 5 information that is out there by 6 reputable organizations. 7 BY MR. HEGARTY: 8 Q. Well, did you gather that 9 information before you completed your 10 expert report? 11 A. I did this after my expert 12 report. 13 Q. And my question was, before 14 your expert report, did you do any of 15 your own analysis of the fragrances that 16 we -- are listed in Exhibit Number 5? 17 MS. O'DELL: Objection to 18 form. 19 THE WITNESS: I'm not sure 20 what you mean by analysis. 21 BY MR. HEGARTY: 22 Q. Well, did you do any of your 23 own research, review of the literature, 24 anything with regard to fragrances as of</p>	<p style="text-align: right;">Page 48</p> <p>1 THE WITNESS: I -- 2 post-report, I did my own search. 3 BY MR. HEGARTY: 4 Q. But my question was, before 5 your report, with regard to Dr. Crowley's 6 report, did you actually pull the 7 literature references that he cites and 8 read them yourself? 9 A. No, sir. 10 Q. You also make reference to 11 reviewing Dr. Longo's report, MDL report, 12 which is dated November 14, 2018. That's 13 in the last page of Exhibit Number B. Do 14 you see that? 15 A. I -- I see that, yes. 16 Q. Did you read every page of 17 that report? 18 A. No, sir, I did not. But I 19 did read every page of the December 2018 20 Longo mass supplement report. 21 Q. Well, focusing on the 22 November 14, 2018, report, that report is 23 over 2,000 pages. Are you aware of that? 24 A. Yes, sir.</p>
<p style="text-align: right;">Page 47</p> <p>1 the time of your signing of your expert 2 report November 16, 2018? 3 A. I very briefly looked up 4 limonene and eugenol. And it wasn't in 5 regards to this case. It was in regards 6 to work that I do with electronic 7 cigarettes. They are being used as 8 flavorants. 9 Q. Was that the extent of your 10 review of the fragrances as of the time 11 of your expert report, November 16, 2018? 12 MS. O'DELL: Object to form. 13 You may answer. 14 THE WITNESS: Whatever is in 15 the report from Dr. Crowley that 16 listed, I looked at those. 17 BY MR. HEGARTY: 18 Q. But as you indicated, you 19 did not read all the citations, the 20 literature resources that Dr. Crowley 21 cites in his report and review them 22 yourself? 23 MS. O'DELL: Object to the 24 form.</p>	<p style="text-align: right;">Page 49</p> <p>1 Q. Did you read all 2,000 2 pages? 3 A. No, sir. I did not. 4 Q. Did you read any of those 5 2,000 pages? 6 A. I reviewed several of those 7 pages. 8 Q. Okay. How about the rest of 9 the reports that are listed there? Did 10 you read every page of the reports that 11 are listed there? 12 A. I read every page of the 13 Dr. Thomas Dydek's report. And I read 14 two-thirds of Dr. Plunkett's. 15 Q. As to the rest, did you 16 review the remaining reports? 17 MS. O'DELL: Object to the 18 form. 19 BY MR. HEGARTY: 20 Q. Or not look at them at all? 21 A. I glanced over them. 22 Q. Do you recall if you were 23 ever provided any draft reports from any 24 of the plaintiffs' experts in the MDL,</p>

13 (Pages 46 to 49)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 50</p> <p>1 where you understood them to be drafts?</p> <p>2 A. I never received anything</p> <p>3 that I understood to be a draft document.</p> <p>4 (Document marked for</p> <p>5 identification as Exhibit</p> <p>6 Zelikoff-6.)</p> <p>7 BY MR. HEGARTY:</p> <p>8 Q. Dr. Zelikoff, I'm marking</p> <p>9 Exhibit Number 6 a copy of your</p> <p>10 deposition notice for purposes of today's</p> <p>11 deposition.</p> <p>12 A. Yes, sir. I see it.</p> <p>13 Q. Did you have a chance to</p> <p>14 look at that before today?</p> <p>15 A. I did not.</p> <p>16 Q. What materials did you bring</p> <p>17 with you to the deposition today?</p> <p>18 MS. O'DELL: I would just</p> <p>19 reassert that the objections that</p> <p>20 plaintiffs have served regarding</p> <p>21 certain of the requests and would</p> <p>22 state that Dr. Zelikoff has</p> <p>23 brought binders of her cited</p> <p>24 materials, and then I believe I</p>	<p style="text-align: right;">Page 52</p> <p>1 Q. Is it correct that the</p> <p>2 binders to your right are copies of</p> <p>3 everything in -- under the listing --</p> <p>4 under the heading of Materials and Data</p> <p>5 Considered?</p> <p>6 MS. O'DELL: Object to the</p> <p>7 form.</p> <p>8 THE WITNESS: I cannot say</p> <p>9 that every single paper in here is</p> <p>10 in there. Maybe in something that</p> <p>11 I have looked up, but I can't say</p> <p>12 with likely certainty that yes,</p> <p>13 everything is in there. Although</p> <p>14 I cannot tell you that I reviewed</p> <p>15 every single one and matched it to</p> <p>16 this page.</p> <p>17 BY MR. HEGARTY:</p> <p>18 Q. Who prepared -- who prepared</p> <p>19 the document Materials and Data</p> <p>20 Considered?</p> <p>21 A. What do you mean by</p> <p>22 prepared?</p> <p>23 Q. Did you prepare it?</p> <p>24 MS. O'DELL: Object to the</p>
<p style="text-align: right;">Page 51</p> <p>1 gave you a jump drive of all the</p> <p>2 reference materials.</p> <p>3 BY MR. HEGARTY:</p> <p>4 Q. Let me go back to my</p> <p>5 question. Sitting to your right are</p> <p>6 binders of materials. Do you know what</p> <p>7 those binders are, Dr. Zelikoff?</p> <p>8 A. I do know what those black</p> <p>9 binders are to my right.</p> <p>10 Q. What are they?</p> <p>11 A. They are binders containing</p> <p>12 materials, papers, literature --</p> <p>13 literature, in alphabetical order of</p> <p>14 papers that are relevant to my -- to my</p> <p>15 testimony, as well as production</p> <p>16 documents which include letters, reports</p> <p>17 of internal documents.</p> <p>18 Q. Your Exhibit B in your</p> <p>19 report starts with a page Materials and</p> <p>20 Data Considered. Do you see that?</p> <p>21 A. Page please?</p> <p>22 Q. It's Exhibit B.</p> <p>23 A. Materials and data</p> <p>24 considered, I have it, yes, sir.</p>	<p style="text-align: right;">Page 53</p> <p>1 form.</p> <p>2 THE WITNESS: I supplied</p> <p>3 data, references, and in</p> <p>4 coordination and complementation</p> <p>5 with the plaintiffs' attorneys,</p> <p>6 they prepared this.</p> <p>7 (Document marked for</p> <p>8 identification as Exhibit</p> <p>9 Zelikoff-7.)</p> <p>10 BY MR. HEGARTY:</p> <p>11 Q. I'm marking as Exhibit</p> <p>12 Number 7 a flash drive that we were</p> <p>13 provided here today. Do you know what</p> <p>14 Exhibit Number 7 is?</p> <p>15 A. I do not.</p> <p>16 Q. Do you know what's contained</p> <p>17 on the flash drive?</p> <p>18 A. I have not seen the data</p> <p>19 within the flash drive.</p> <p>20 MS. O'DELL: I'll just</p> <p>21 represent that I prepared the</p> <p>22 flash drive and the flash drive</p> <p>23 has all the materials on</p> <p>24 Exhibit B, on behalf of</p>

14 (Pages 50 to 53)

Judith Zelikoff, Ph.D.

Page 54	Page 56
<p>1 Dr. Zelikoff. 2 BY MR. HEGARTY: 3 Q. Are the materials you also 4 cited -- I'm sorry. Are the references 5 you also cited in the body of your report 6 contained in those notebooks to your 7 knowledge? 8 A. To my knowledge, they are. 9 Q. Are the materials that -- 10 that are in those notebooks materials you 11 reviewed or had access to prior to 12 completion of your expert report? 13 A. Prior to the completion. 14 However I also prepared my own. So in 15 going through -- in coming to my 16 conclusion and opinion, I also went 17 through the literature using various 18 websites including, as I said Tox Lit, 19 Google and PubMed. And I arranged my 20 documents that I thought were relevant 21 after reviewing all of the ones that came 22 up in my literature search, and I 23 reviewed the abstracts and if I found 24 them to be relevant, I placed them in --</p>	<p>1 Q. You had not read that 2 manuscript though at the time you 3 completed your report, correct? 4 A. No, I did not, sir. 5 Q. So that manuscript did not 6 inform the opinions set out in your 7 report, correct? 8 MS. O'DELL: Objection to 9 form. 10 THE WITNESS: Do I answer? 11 MS. O'DELL: Yes, you may 12 answer. 13 THE WITNESS: Okay. 14 MS. O'DELL: Yes. 15 THE WITNESS: I -- I had 16 access to an abstract from the 17 same author with emerging results 18 that was brought forward in larger 19 context and in greater detail in 20 the publication. So I had -- so 21 the abstract did go into my 22 thinking. 23 BY MR. HEGARTY: 24 Q. The manuscript though we</p>
Page 55	Page 57
<p>1 in order and in bins, in silos, in 2 different areas, and I prepared my own. 3 Q. We were also provided today, 4 this morning, what I've marked as Exhibit 5 Number 8 which is a manuscript from a 6 publication called Reproductive Sciences. 7 The lead author, Ghassam Saed. 8 (Document marked for 9 identification as Exhibit 10 Zelikoff-8.) 11 BY MR. HEGARTY: 12 Q. Can you tell me when you 13 received that manuscript? 14 A. I received the manuscript in 15 December. 16 Q. Approximately when in 17 December? 18 A. Let me say that it was 19 either December or early January. I 20 cannot be more exact than that. 21 Q. Have you read that 22 manuscript? 23 A. Have I -- yes, I've read 24 this manuscript.</p>	<p>1 marked as Exhibit 8 did not go into your 2 thinking? 3 A. The manuscript -- no, sir, 4 it did not. It did post my report and it 5 added supplementary and compelling 6 evidence for my opinion. 7 (Document marked for 8 identification as Exhibit 9 Zelikoff-9.) 10 BY MR. HEGARTY: 11 Q. I've also marked as Exhibit 12 Number 9 another document we were 13 provided this morning which is -- which 14 is called Draft Screening Assessment. 15 When did you receive this 16 draft screening assessment? 17 A. January. 18 Q. Approximately when in 19 January? 20 A. About two weeks ago. 21 Q. Who -- what was your source 22 for getting that document? 23 A. Ms. Emmel. 24 Q. Did Ms. Emmel also provide</p>

15 (Pages 54 to 57)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 58</p> <p>1 the -- the Saed manuscript?</p> <p>2 A. Yes, sir, she did.</p> <p>3 Q. So neither the Canadian</p> <p>4 assessment nor Dr. Saed's manuscript were</p> <p>5 materials you found on your own, correct?</p> <p>6 A. Correct.</p> <p>7 Q. Do you know how Ms. Emmel</p> <p>8 came to receive an unpublished</p> <p>9 manuscript, apart from any discussions</p> <p>10 that you had with plaintiffs' counsel?</p> <p>11 A. Actually, which manuscript</p> <p>12 are you referring to?</p> <p>13 Q. Well, there's only one</p> <p>14 manuscript in front of you?</p> <p>15 A. Reproductive Science --</p> <p>16 Q. Dr. -- yes.</p> <p>17 A. -- Dr. Saed?</p> <p>18 To my knowledge, this has --</p> <p>19 and seeing the cover letter that was</p> <p>20 associated with this, this is not a</p> <p>21 manuscript. This is an in-press</p> <p>22 manuscript, and there is a very large</p> <p>23 difference.</p> <p>24 Q. Okay. Apart from anything</p>	<p style="text-align: right;">Page 60</p> <p>1 that is a supplement of that or a -- an</p> <p>2 adjacent document.</p> <p>3 Q. Do you have that document</p> <p>4 with you?</p> <p>5 A. Perhaps. I do, yes, sir.</p> <p>6 Q. May I see it, please.</p> <p>7 (Document marked for</p> <p>8 identification as Exhibit</p> <p>9 Zelikoff-10.)</p> <p>10 BY MR. HEGARTY:</p> <p>11 Q. I'm going to mark as Exhibit</p> <p>12 Number 10 what you just handed to me,</p> <p>13 which is titled "Systematic Review and</p> <p>14 Meta-Analysis of the Association Between</p> <p>15 Perineal Use of Talc and Risk of Ovarian</p> <p>16 Cancer," lead author Taher.</p> <p>17 When did you receive Exhibit</p> <p>18 Number 10?</p> <p>19 MS. O'DELL: Did we skip</p> <p>20 nine?</p> <p>21 MR. HEGARTY: Exhibit 9 is</p> <p>22 the draft screening assessment.</p> <p>23 MS. O'DELL: Okay. I'm</p> <p>24 sorry. I had that as Number 8.</p>
<p style="text-align: right;">Page 59</p> <p>1 that counsel for plaintiffs may have told</p> <p>2 you, do you know how this manuscript</p> <p>3 became available for you to review?</p> <p>4 A. I have no knowledge.</p> <p>5 Q. With regard to the</p> <p>6 Canadian -- sorry, the draft screening</p> <p>7 assessment, did you read the entirety of</p> <p>8 this assessment?</p> <p>9 A. I'm looking for it right</p> <p>10 now.</p> <p>11 Q. Sorry.</p> <p>12 A. Thank you. Except for the</p> <p>13 references, I read the entirety of the</p> <p>14 text.</p> <p>15 Q. Did you pull the references</p> <p>16 and review the references themselves?</p> <p>17 A. No, sir, I did not.</p> <p>18 Q. There are also supplemental</p> <p>19 materials associated with this -- or do</p> <p>20 you know whether there are supplemental</p> <p>21 materials associated with this draft, or</p> <p>22 with this draft screening assessment?</p> <p>23 A. I was also provided a</p> <p>24 document by Dr. Taher. I'm not sure if</p>	<p style="text-align: right;">Page 61</p> <p>1 MR. HEGARTY: Number 8 is</p> <p>2 the manuscript by Dr. Saed.</p> <p>3 MS. O'DELL: Okay. I'm</p> <p>4 sorry.</p> <p>5 BY MR. HEGARTY:</p> <p>6 Q. Going back to my question,</p> <p>7 when did you receive the article by</p> <p>8 Taher?</p> <p>9 A. At the same time that I</p> <p>10 received the health -- the screening</p> <p>11 health assessment from Health Canada.</p> <p>12 Q. Who provided it to you?</p> <p>13 A. Ms. Emmel.</p> <p>14 Q. Did you read the entirety of</p> <p>15 that document?</p> <p>16 A. I read the entirety of this</p> <p>17 document minus the references.</p> <p>18 Q. Did you pull the literature</p> <p>19 cited in the Taher article and review it</p> <p>20 yourself?</p> <p>21 A. I may have looked at</p> <p>22 references that have -- were on the</p> <p>23 reference list of the Saed document, but</p> <p>24 I did not go through each individual</p>

16 (Pages 58 to 61)

Judith Zelikoff, Ph.D.

Page 62	Page 64
<p>1 reference in the document and pull it</p> <p>2 specifically.</p> <p>3 Q. The Taher article -- strike</p> <p>4 that.</p> <p>5 You were provided the Taher</p> <p>6 article after you completed your expert</p> <p>7 report in this case, correct?</p> <p>8 A. That's correct.</p> <p>9 Q. So it's correct that it did</p> <p>10 not inform your opinions in your report,</p> <p>11 correct?</p> <p>12 A. It informed my opinions --</p> <p>13 let me say that it added to my opinions</p> <p>14 following the writing of my report. It</p> <p>15 supported my position.</p> <p>16 Q. Did the assessment conclude</p> <p>17 that talc use causes ovarian cancer?</p> <p>18 Strike that. Let me strike that</p> <p>19 question. We'll come back to that.</p> <p>20 (Document marked for</p> <p>21 identification as Exhibit</p> <p>22 Zelikoff-11.)</p> <p>23 BY MR. HEGARTY:</p> <p>24 Q. I'm going to mark next as</p>	<p>1 Q. Have you reviewed any</p> <p>2 materials since completion of your report</p> <p>3 for purposes of your work on this case</p> <p>4 that we have not talked about this</p> <p>5 morning?</p> <p>6 A. I reviewed -- since my</p> <p>7 report, I reviewed Dr. Pier's deposition.</p> <p>8 Is that what you mean?</p> <p>9 Q. Dr. Julie Pier's deposition?</p> <p>10 A. Yes. Three-quarters of it.</p> <p>11 It is a very long deposition.</p> <p>12 Q. The second-to-last page of</p> <p>13 Exhibit Number B under depositions makes</p> <p>14 reference to depositions and exhibits of</p> <p>15 Julie Pier dated 9/12 to 9/13/2018.</p> <p>16 Do you see that?</p> <p>17 A. Sorry, sir. Fifth line</p> <p>18 down, deposition/exhibits of Julie Pier.</p> <p>19 Q. Is that the deposition to</p> <p>20 which you just referred?</p> <p>21 A. To the best of my knowledge.</p> <p>22 Q. Anything else that you have</p> <p>23 reviewed for purposes of your work on</p> <p>24 this case that we have not talked about</p>
Page 63	Page 65
<p>1 Exhibit Number 11 a copy of the Exhibit C</p> <p>2 that's referenced in your report.</p> <p>3 Did you prepare Exhibit</p> <p>4 Number C?</p> <p>5 A. If you mean by preparation,</p> <p>6 did I write it, did I prepare the</p> <p>7 summary, no, sir I did not.</p> <p>8 Q. Do you know who prepared it?</p> <p>9 A. From my reading, it appears</p> <p>10 as though the attorneys may have prepared</p> <p>11 it based upon -- to my knowledge, based</p> <p>12 upon other deponents.</p> <p>13 Q. Other than the documents</p> <p>14 that we have talked about that are laid</p> <p>15 out before us, did you bring any other</p> <p>16 documents with you to the deposition?</p> <p>17 A. Other than the documents</p> <p>18 that are to my right in the folders, the</p> <p>19 health assessment from the -- the</p> <p>20 screening health assessment from Canada,</p> <p>21 Dr. Taher's paper, a letter -- this is in</p> <p>22 the documents to my right, a letter from</p> <p>23 Luzenac to Dr. Al Wehner, my CV, the</p> <p>24 expert report, Exhibit B, my CV, no, sir.</p>	<p>1 this morning or made reference to?</p> <p>2 A. I reviewed Dr. Hopkins'</p> <p>3 report.</p> <p>4 Q. Let me ask it different.</p> <p>5 Anything that you have reviewed that's</p> <p>6 either not listed somewhere in your</p> <p>7 report or we have not marked as an</p> <p>8 exhibit?</p> <p>9 A. To the best of my knowledge,</p> <p>10 no.</p> <p>11 Q. With regard to Exhibit C,</p> <p>12 did you review all the documents that are</p> <p>13 referenced in Exhibit Number C?</p> <p>14 A. Can I see that, please.</p> <p>15 Q. I think you still have a</p> <p>16 copy in front of you.</p> <p>17 A. Okay.</p> <p>18 Q. It's Exhibit Number 11,</p> <p>19 which is marked Exhibit -- which is</p> <p>20 Exhibit C. Did you actually pull the</p> <p>21 documents and confirm the accuracy of the</p> <p>22 information --</p> <p>23 A. No, sir.</p> <p>24 Q. -- contained in Exhibit C?</p>

17 (Pages 62 to 65)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 66</p> <p>1 A. There are no -- there are no 2 references in here, as I understand it. 3 Q. Well, there are Bates 4 numbers -- 5 A. Bates numbers. 6 Q. -- that are listed at the 7 right, which correspond to documents, 8 correct? 9 A. Yes, but when I -- when I 10 hear references I think of citations, 11 papers. 12 Q. Did you actually pull the 13 documents whose Bates numbers are listed 14 and confirm the accuracy of the 15 information contained in Exhibit C? 16 A. I did not pull them as part 17 of reviewing this exhibit, but I have 18 looked at them, because I have gone 19 through all of the production documents. 20 Q. With regard to your expert 21 report in this case, is it correct that 22 you prepared that report -- strike that. 23 With regard to your expert 24 report it defines the scope of your</p>	<p style="text-align: right;">Page 68</p> <p>1 BY MR. HEGARTY: 2 Q. You agree that the standard 3 for proving biologic plausibility or any 4 other scientific issue in the medical 5 literature is the same one that applies 6 in litigation, correct? 7 MS. O'DELL: Object to the 8 form. If you know. 9 THE WITNESS: Can you repeat 10 that, please. 11 BY MR. HEGARTY: 12 Q. Sure. You agree that the 13 standard for proving biologic 14 plausibility or any other scientific 15 issue in a medical literature or in 16 science should be the same that is 17 applied in litigation? 18 MS. O'DELL: Object to the 19 form. 20 THE WITNESS: I will use the 21 same scrutiny and rigor, as I said 22 before. 23 BY MR. HEGARTY: 24 Q. You would -- you intend to</p>
<p style="text-align: right;">Page 67</p> <p>1 testimony in this case, correct? 2 MS. O'DELL: Objection to 3 form. 4 THE WITNESS: Yes, it does. 5 BY MR. HEGARTY: 6 Q. And is it correct that the 7 report was prepared with the same 8 methodology and approach as you would 9 have prepared an article for publication 10 in a scientific journal? 11 A. An article, a grant, a 12 review, an advisory board report, with 13 the same rigor and the same scrutiny, 14 yes. 15 Q. In other words, is it 16 correct that you prepared this report in 17 the same manner as you had prepared all 18 of your articles for publication? 19 MS. O'DELL: Asked and 20 answered. 21 THE WITNESS: I used the 22 same methodology, the same 23 scrutiny and the same rigor to 24 prepare this, yes.</p>	<p style="text-align: right;">Page 69</p> <p>1 apply the same standards to your report 2 and your opinions in this case as you 3 would apply if you were looking at this 4 as simply a professor at New York 5 University? 6 A. Well, I don't see simply a 7 professor. 8 If I were -- I review 9 papers. I think I've answered this 10 already. But I review papers and 11 literature with the same scrutiny as I 12 prepared this report. 13 Q. Did you apply the same 14 standard for assessing biologic 15 plausibility as you apply in your work at 16 NY University? 17 A. I do. 18 Q. Did you sign your report 19 dated November 16, 2018, with the same 20 intent as if signed under penalty of 21 perjury? 22 A. Could you repeat that 23 please. 24 Q. Sure. Did you sign your</p>

18 (Pages 66 to 69)

Judith Zelikoff, Ph.D.

Page 70	Page 72
<p>1 expert report dated November 16, 2018, 2 with the same intent as if signed under 3 penalty of perjury? 4 MS. O'DELL: Object to form. 5 THE WITNESS: I'm not sure I 6 understand what that question 7 means. 8 BY MR. HEGARTY: 9 Q. Well, did you -- by signing 10 this report, did you confirm to the 11 accuracy of everything contained in the 12 report? 13 A. To the best of my knowledge, 14 I signed this report knowing that I 15 prepared this report and there is -- with 16 the same intent of accuracy and rigor. 17 Q. You understand this is 18 supposed to be your testimony as if on a 19 stand before a judge or a jury, correct? 20 MS. O'DELL: Object to the 21 form. 22 THE WITNESS: My 23 understanding of the deposition is 24 that it is a legal document and</p>	<p>1 that these are my -- my report 2 reflects my opinion. 3 BY MR. HEGARTY: 4 Q. Are they -- are there any 5 necessary changes, or revisions to your 6 report? 7 A. Not to my knowledge. 8 Q. And all the opinions that 9 you intend to offer in this litigation 10 are set out in your report, as you just 11 said, correct? 12 A. To come to my decision or my 13 opinion, prior to -- included all the 14 documents that I had in my possession and 15 were -- had access to prior to my report. 16 Q. My question is a little bit 17 different, Doctor. My question is, the 18 opinions that you intend to offer as you 19 just indicated, those are set out in your 20 report, correct? 21 A. The opinions that I intend 22 to offer, yes. 23 Q. As your report shows, you 24 don't intend to offer the opinion that</p>
Page 71	Page 73
<p>1 testifying my -- my opinion. And 2 that it has to be honest and 3 truthful and transparent. 4 BY MR. HEGARTY: 5 Q. Well, this time I'm talking 6 about your report. Do you understand 7 your report is supposed to be your 8 testimony as if you are before a judge 9 and a jury? 10 MS. O'DELL: Object to the 11 form. 12 THE WITNESS: I -- I 13 understand that this has to be 14 honest and truthful, and this will 15 be -- could be, will be, the basis 16 for my testimony in a court trial, 17 if that is what you're asking. 18 BY MR. HEGARTY: 19 Q. You understand it's supposed 20 to set out your -- the entirety of your 21 opinions in this case? 22 MS. O'DELL: Object to the 23 form. 24 THE WITNESS: I understand</p>	<p>1 use of Johnson's Baby Powder or Shower to 2 Shower causes ovarian cancer, correct? 3 A. My mission, the question 4 that I was asked by plaintiff attorney 5 was to confer or to assess biological 6 plausibility in the causation of talc for 7 ovarian cancer. 8 Q. And as your report shows, 9 you did not do a risk assessment or 10 Bradford Hill analysis of all the 11 literature looking at talc products and 12 ovarian cancer, correct? 13 A. I think I answered that, but 14 I'm not an epidemiologist, and my -- my 15 question was to look at biological 16 plausibility. 17 Q. And all the materials that 18 you intend to rely upon for purposes of 19 your opinions, are those set out in your 20 report, those we've talked about here 21 this morning, correct? 22 A. Yes, including the 23 contributions that were made after my 24 report including Dr. Longo's supplement,</p>

19 (Pages 70 to 73)

Judith Zelikoff, Ph.D.

Page 74	Page 76
<p>1 including Dr. Saed's paper. They added 2 to my opinion, supplemented them. But it 3 is -- but my -- my opinion stays the same 4 as the report. 5 Q. Okay. 6 MR. HEGARTY: The next 7 section I have is pretty long. I 8 don't know if you want to take a 9 quick break now or just keep 10 going. It's up to you. 11 MS. O'DELL: We've been 12 going about an hour. I think 13 that's probably a good idea. 14 MR. HEGARTY: Because 15 otherwise it's not -- there's not 16 going to be a good break time. So 17 we should probably do it now. 18 MS. O'DELL: Well, we can 19 definitely do it now, but we'll -- 20 of course we'll break when the 21 witness needs to break. 22 MR. HEGARTY: Understood. 23 Understood. But you know what I 24 mean.</p>	<p>1 by more than one investigator, and is a 2 compilation of different points, then 3 I -- I will use -- I will not necessarily 4 put quotations around it. And I will not 5 necessarily reference it, because it's -- 6 may have been taken from another document 7 but it's common knowledge. 8 Q. What about -- 9 A. And it's -- 10 Q. I'm sorry. I didn't mean to 11 interrupt. 12 A. I couldn't -- I'm sorry. I 13 couldn't write it any better than as it 14 was put. 15 Q. What about if you take 16 materials from a published article for 17 purposes of your report, did you 18 reference those articles? 19 A. In some cases, not. Again, 20 it's my opinion that if there is 21 something that is stated by an 22 investigator and it's written extremely 23 well, and it's common knowledge for 24 scientists in that area, as well as</p>
Page 75	Page 77
<p>1 MS. O'DELL: Yeah. 2 THE VIDEOGRAPHER: Stand by 3 please. The time is 10:11 a.m. 4 Off the record. 5 (Short break.) 6 THE VIDEOGRAPHER: We are 7 back on the record. The time is 8 10:26 a.m. 9 BY MR. HEGARTY: 10 Q. Dr. Zelikoff, with regard to 11 your expert report, do you have that in 12 front of you? 13 A. I do now. Thank you. 14 Q. We marked that as exhibit 15 what? 16 A. Exhibit 2. 17 Q. With regard to Exhibit 18 Number 2, is it your testimony that all 19 of the sentences in your report are your 20 own words and not copied from others, 21 except where you used quotations? 22 A. Mm-hmm. The way I report 23 and write publications is if something 24 is, I feel, common knowledge or provided</p>	<p>1 others, then I will -- I will use it. 2 Q. That's not how you prepare 3 your report -- that's not how you prepare 4 your articles for journals though, 5 correct? 6 A. No, that's the same way I 7 prepare them. 8 If they are -- if they are, 9 again, common knowledge, I will not 10 necessarily cite them. 11 Q. Is it not your approach that 12 authors are to cite material to which 13 they are relying on or referring to in 14 published articles? 15 A. Again, I think you're asking 16 me the same question. But again, if 17 something is well known, then I do not 18 necessarily reference it. 19 Q. What is the definition -- 20 what is your definition of well known? 21 A. For example, if chromium -- 22 let's use nickel instead. If nickel is 23 being spoken about by IARC, by U.S. EPA, 24 by National Toxicology Program, and</p>

20 (Pages 74 to 77)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 78</p> <p>1 they're all saying the same thing, I in 2 some cases may take what the IARC has 3 said and put it in my reference. 4 Q. And it's your testimony that 5 you do that in all -- you've done that in 6 all the articles that you've ever 7 published? 8 MS. O'DELL: Objection to 9 form. 10 THE WITNESS: I can't say 11 about all the articles. I 12 published over 130 -- 13 MR. HEGARTY: Mark -- 14 THE WITNESS: -- 15 publications and book chapters. 16 (Document marked for 17 identification as Exhibit 18 Zelikoff-12.) 19 BY MR. HEGARTY: 20 Q. Let me mark as Exhibit 21 Number 12 the academic integrity for 22 students at NYU policy. Is this the 23 policy applicable to your university? 24 A. It appears to be that you've</p>	<p style="text-align: right;">Page 80</p> <p>1 Q. Is that not -- is that a 2 definition you agree with? 3 A. I agree that there's ways to 4 interpret that. 5 Q. Is that -- is that the 6 definition New York University applies to 7 its students? 8 A. This sentence, "Presenting 9 others' work without adequate 10 acknowledgment of its source as though it 11 were one's own," that is for students. 12 That is not what I'm doing in my opinion. 13 In my opinion, I'm taking 14 common knowledge and presenting it. 15 Q. Well, they go on to give 16 examples of plagiarism that include, "A 17 sequence of words incorporated without 18 quotation marks." 19 Do you see where I'm 20 reading? 21 A. I do see it. "A sequence of 22 words incorporated without quotation 23 marks." 24 Q. It also says that,</p>
<p style="text-align: right;">Page 79</p> <p>1 taken it off the website in the academic 2 integrity for students at NYU. 3 Q. If you turn to the second 4 page, there is a definition of 5 plagiarism, that says, "Presenting 6 others' works without adequate 7 acknowledgment of its source as though it 8 were one's own." 9 A. I'm sorry. 10 Q. Do you agree with that 11 definition? 12 A. I'm sorry. What -- 13 Q. Second page of Exhibit 12. 14 A. You mean on the back? Is it 15 under Number 2, Number 1? 16 Q. Number 1. The definition of 17 plagiarism by your university for your 18 students is, "Presenting others' work 19 without adequate acknowledgement of its 20 source as though it were one's own." 21 Do you agree with that -- 22 that definition? 23 A. I agree that there's many 24 different ways to interpret that.</p>	<p style="text-align: right;">Page 81</p> <p>1 "Plagiarism is an unacknowledged passage 2 paraphrased from another's work." 3 Do you see that? 4 A. Some examples of plagiarism, 5 "Unacknowledged passage rephrased from 6 another's work." 7 Q. Do you agree those are -- 8 the two definitions that I just read from 9 your university's own policy for students 10 are examples of plagiarism? 11 A. This is the NYU 12 interpretation or what they've put on the 13 website, yes. 14 Q. Should this be a policy -- 15 strike that. 16 Is this a policy that 17 applies to students at NY university? 18 A. It applies -- it's an 19 academic integrity for students at NYU. 20 Q. Do you agree that professors 21 at NY university should also conform to 22 this policy? 23 A. I believe that honesty, 24 transparency is the key factor for all</p>

21 (Pages 78 to 81)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 82</p> <p>1 scientists at any level. 2 Q. You would agree that this 3 should apply to your work as well, 4 correct? 5 A. I think that this definition 6 is open to interpretation. 7 Q. Well, do you either agree or 8 disagree that this -- well, strike that. 9 Do you agree that this 10 policy should be applied to your work in 11 this case? 12 A. I agree that plagiarism is 13 defined as presenting others' work 14 without adequate acknowledgment of its 15 source as though it were one's own. 16 That's the NYU policy for students. 17 Q. Did you -- you did that in 18 your own report, correct? 19 MS. O'DELL: Object to form. 20 THE WITNESS: I did what in 21 my own report? 22 BY MR. HEGARTY: 23 Q. You plagiarized portions of 24 other people's work without proper</p>	<p style="text-align: right;">Page 84</p> <p>1 Q. Do you know who Shawn Levy 2 is? 3 A. I do not. 4 Q. Did you review Dr. Levy's 5 report for purposes of your -- preparing 6 your report in this case? 7 A. I actually looked at it, but 8 did not -- did not read it. 9 Q. When did you have a chance 10 to look at his expert report? 11 A. I have looked at it -- I'm 12 trying to gather the knowledge. I 13 actually do not recall when I looked at 14 it. 15 Q. If you look at your report 16 on Page 20. In that exhibit, Doctor. 17 A. Oh okay. 18 Q. Your report and the portion 19 of Dr. Levy's report is attached, and if 20 you look at your report Page 20 and his 21 report Page 5 -- 22 MS. O'DELL: I think, Mark, 23 I think there's confusion because 24 there's two documents put together</p>
<p style="text-align: right;">Page 83</p> <p>1 acknowledgment, correct? 2 MS. O'DELL: Objection to 3 form. 4 THE WITNESS: That is 5 totally incorrect. 6 I used sentences from other 7 people's -- other people's papers 8 because they were common knowledge 9 and contributed by multiple 10 authors. And it was -- 11 BY MR. HEGARTY: 12 Q. I'm going to mark -- sorry. 13 A. And it was stated in a way 14 that I couldn't have stated better. 15 Q. I'm going to mark as 16 Exhibit 13 a report -- a portion of your 17 report dated November 16, 2018. And the 18 back of that is a portion of Rule 26 19 expert report of an expert by the name of 20 Shawn Levy. 21 (Document marked for 22 identification as Exhibit 23 Zelikoff-13.) 24 BY MR. HEGARTY:</p>	<p style="text-align: right;">Page 85</p> <p>1 in this -- 2 MR. HEGARTY: Right. One is 3 her report and one is Levy's 4 report. 5 MS. O'DELL: I just think 6 that that was the confusion. 7 THE WITNESS: Thank you. 8 BY MR. HEGARTY: 9 Q. So the -- do you see that 10 sentences marked as 1 and 2 from 11 Dr. Levy's report are identical to 12 sentences marked 1 and 2 in your report? 13 MS. O'DELL: Object to form. 14 And, Doctor, if you need to 15 take the documents apart and 16 compare them, rather than flipping 17 back and forth, if that would be 18 helpful to you, feel free to do 19 that. 20 THE WITNESS: Good idea. I 21 actually don't recall. Could 22 you -- could you tell me when my 23 report is dated please? 24 BY MR. HEGARTY:</p>

22 (Pages 82 to 85)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 86</p> <p>1 Q. November 16. His report is 2 also dated November 16. 3 A. I did not actually see this 4 report until after mine. 5 However, let me address your 6 question to the best of my ability. 7 "Things stated as both 8 inherited and acquired gene mutations 9 work together to cause cancer." 10 Everyone from the time of 11 their scientific career back in college 12 knows that. 13 "While genetic testing" -- 14 let me make sure I have both -- "both 15 inherited and acquired gene mutations 16 work together to cause cancer." 17 How -- there is no way for 18 me to say that differently. This is a 19 very well statement, very well put 20 statement. I used it without a 21 reference. Even if one -- 22 Q. My question -- I'm sorry. I 23 thought you were finished. 24 A. "Even if one has inherited a</p>	<p style="text-align: right;">Page 88</p> <p>1 from either Dr. Levy's report or from 2 somewhere -- some other source? 3 A. The thoughts are the same. 4 The words seem to be identical. And 5 again, if you interpret that one way and 6 I interpret it another, I certainly do 7 not interpret it as plagiarism. 8 Q. Let me show you another 9 example. 10 (Document marked for 11 identification as Exhibit 12 Zelikoff-14.) 13 BY MR. HEGARTY: 14 Q. I'm going to mark as 15 Exhibit 14, again a portion of your 16 report Page 12 and a portion of a report 17 by Rebecca Smith-Bindman. Do you know 18 who that is? 19 A. Not at all. 20 Q. Did you see her report in 21 this case before preparing your report? 22 A. I never looked at her 23 report. 24 Q. If you would look at the two</p>
<p style="text-align: right;">Page 87</p> <p>1 genetic mutation that predisposes one's 2 chances, doesn't mean he or she has to 3 get cancer." Again, common knowledge 4 from everyone. 5 Q. Well, Dr. Zelikoff, my 6 question is different than that. 7 My question is, can you 8 explain to us here today, given that you 9 did not see Dr. Levy's report until after 10 you completed your report, how you have 11 several identical sentences between your 12 report and Dr. Levy's report? 13 MS. O'DELL: Object to the 14 form. 15 BY MR. HEGARTY: 16 Q. Dr. Levy's report. 17 A. I cannot -- I -- I don't 18 know. The only -- what I can say is that 19 there was likely a publication. But that 20 is speculation, because I have not looked 21 that over. 22 Q. But is it your testimony 23 here today that the words in your report 24 were solely your own words and not taken</p>	<p style="text-align: right;">Page 89</p> <p>1 reports side by side under the 2 definition -- under the heading 3 Fragrances -- 4 A. I'm sorry, I don't have her 5 report. 6 Q. You have one page of her 7 report in that exhibit. You have the -- 8 the front page and the one page of her 9 report, and you have Page 12 of your 10 report, correct? 11 A. I see. Correct. 12 Q. Do you see that the section 13 under the heading Fragrances is identical 14 between the two reports? 15 A. Yes. They are identical 16 wording. 17 Q. And none of those sentences 18 are common knowledge, correct? 19 MS. O'DELL: Object to the 20 form. 21 THE WITNESS: It's a 22 statement. 23 BY MR. HEGARTY: 24 Q. But it's not common</p>

23 (Pages 86 to 89)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 90</p> <p>1 knowledge, correct, Doctor?</p> <p>2 A. But it's a -- it is -- there</p> <p>3 are more than 150 different chemicals</p> <p>4 added to Johnson's Baby Powder and Shower</p> <p>5 to Shower products. I reviewed the</p> <p>6 expert report from Dr. Crowley that</p> <p>7 concludes that some of these chemicals</p> <p>8 may contribute to the inflammatory</p> <p>9 response, toxicity, and potential</p> <p>10 carcinogenicity. I concur with his</p> <p>11 opinion.</p> <p>12 I say the same thing as</p> <p>13 Dr. Smith-Bindman.</p> <p>14 Q. Is it your testimony that</p> <p>15 you and Dr. Smith-Bindman came to the</p> <p>16 exact same words just by coincidence?</p> <p>17 MS. O'DELL: Object to the</p> <p>18 form.</p> <p>19 THE WITNESS: We came to the</p> <p>20 same conclusions.</p> <p>21 BY MR. HEGARTY:</p> <p>22 Q. That's not my question. My</p> <p>23 question is, is it your testimony here</p> <p>24 today that you and Dr. Smith-Bindman came</p>	<p style="text-align: right;">Page 92</p> <p>1 Q. Sure. Is it your testimony</p> <p>2 that the words in your report under</p> <p>3 section -- under the section Fragrances</p> <p>4 are your words and your words alone from</p> <p>5 no other source?</p> <p>6 MS. O'DELL: Object to the</p> <p>7 form.</p> <p>8 THE WITNESS: I don't quite</p> <p>9 understand what you mean by no</p> <p>10 other source.</p> <p>11 These are my words. They</p> <p>12 confer my opinion.</p> <p>13 BY MR. HEGARTY:</p> <p>14 Q. Well, did you copy those</p> <p>15 words from some source besides</p> <p>16 Smith-Bindman's report?</p> <p>17 A. I did not copy words. I --</p> <p>18 I don't know how this happened.</p> <p>19 If I was in error, I own</p> <p>20 that responsibility.</p> <p>21 (Document marked for</p> <p>22 identification as Exhibit</p> <p>23 Zelikoff-15.)</p> <p>24 BY MR. HEGARTY:</p>
<p style="text-align: right;">Page 91</p> <p>1 to the exact -- to say the exact same</p> <p>2 thing under the section Fragrance simply</p> <p>3 by coincidence?</p> <p>4 MS. O'DELL: Objection to</p> <p>5 form.</p> <p>6 THE WITNESS: I don't do</p> <p>7 anything usually by coincidence.</p> <p>8 BY MR. HEGARTY:</p> <p>9 Q. Okay. Is it your testimony</p> <p>10 that the words that you wrote under the</p> <p>11 section Fragrances on Page 12 are your</p> <p>12 words and came from nowhere else?</p> <p>13 A. I don't quite understand</p> <p>14 where they could have come from because I</p> <p>15 did not review her report.</p> <p>16 Q. Is it your testimony that</p> <p>17 the words in your report under the</p> <p>18 section Fragrances are your words and</p> <p>19 your words alone from no other source?</p> <p>20 MS. O'DELL: Object to the</p> <p>21 form.</p> <p>22 THE WITNESS: Could you</p> <p>23 please repeat the question?</p> <p>24 BY MR. HEGARTY:</p>	<p style="text-align: right;">Page 93</p> <p>1 Q. I'm going to show you what</p> <p>2 I'm next marking as Exhibit 15.</p> <p>3 MS. O'DELL: Is this one</p> <p>4 exhibit?</p> <p>5 MR. HEGARTY: That's one</p> <p>6 exhibit.</p> <p>7 BY MR. HEGARTY:</p> <p>8 Q. Doctor, Exhibit Number 15 is</p> <p>9 again a portion of your report, and also</p> <p>10 attached to it is a reference from</p> <p>11 Genetics Home Reference dated June 27,</p> <p>12 2017. Do you see both documents?</p> <p>13 A. I do see both documents.</p> <p>14 Q. We have highlighted and</p> <p>15 numbered in Exhibit 15 the portions from</p> <p>16 your report which are taken word for word</p> <p>17 from Genetics Home Reference without a</p> <p>18 single reference to that authority</p> <p>19 anywhere in your report, including in the</p> <p>20 materials considered or reviewed.</p> <p>21 MS. O'DELL: Objection.</p> <p>22 BY MR. HEGARTY:</p> <p>23 Q. Do you see that?</p> <p>24 MS. O'DELL: Objection to</p>

24 (Pages 90 to 93)

Judith Zelikoff, Ph.D.

Page 94	Page 96
<p>1 form.</p> <p>2 And -- and, Doctor, take a</p> <p>3 moment to review both, because the</p> <p>4 way this is put together is a</p> <p>5 little confusing.</p> <p>6 THE WITNESS: I see what</p> <p>7 you're referring to.</p> <p>8 BY MR. HEGARTY:</p> <p>9 Q. And did you copy, for</p> <p>10 purposes of your report, without citation</p> <p>11 to this authority, the words that we've</p> <p>12 identified from this reference to Genetic</p> <p>13 Home Reference?</p> <p>14 MS. O'DELL: Objection to</p> <p>15 the form.</p> <p>16 THE WITNESS: So when you</p> <p>17 have things like, "Inherited</p> <p>18 mutations are passed down from</p> <p>19 parent to child and are present</p> <p>20 throughout a person's life in</p> <p>21 virtually in every cell of the</p> <p>22 body." Biology 101, basically,</p> <p>23 where that came from.</p> <p>24 "These mutations are called</p>	<p>1 your report in this case?</p> <p>2 A. I may have used -- it</p> <p>3 appears that I have used the same words.</p> <p>4 And if I did that, which it</p> <p>5 appears that I have, then I've done it</p> <p>6 with the intent to get those same points</p> <p>7 across.</p> <p>8 Q. But you do agree that you</p> <p>9 have included in your report a sequence</p> <p>10 of words incorporated from another source</p> <p>11 without quotation marks, correct?</p> <p>12 MS. O'DELL: Objection to</p> <p>13 form.</p> <p>14 THE WITNESS: I don't use --</p> <p>15 I don't usually use quotation</p> <p>16 marks.</p> <p>17 BY MR. HEGARTY:</p> <p>18 Q. Well, you have used other</p> <p>19 people's words without acknowledging</p> <p>20 where they came from, correct?</p> <p>21 MS. O'DELL: Object to the</p> <p>22 form.</p> <p>23 THE WITNESS: I could have</p> <p>24 used quotation marks. And if I</p>
Page 95	Page 97
<p>1 germ line mutations because</p> <p>2 they're present in the parents'</p> <p>3 egg or sperm, a germ cell."</p> <p>4 Yes, some of these sentences</p> <p>5 appear to be the same as what is</p> <p>6 in here.</p> <p>7 However, again, I stand on</p> <p>8 the fact that all of these -- all</p> <p>9 of my statements are common</p> <p>10 knowledge that have come from</p> <p>11 numerous references. Although the</p> <p>12 words may be the same, the</p> <p>13 thoughts are -- are said as well</p> <p>14 as they can be said.</p> <p>15 BY MR. HEGARTY:</p> <p>16 Q. Dr. Zelikoff, have you ever</p> <p>17 seen this reference to Genetic Home</p> <p>18 Reference before right now?</p> <p>19 A. Not to my knowledge.</p> <p>20 Q. So is it your testimony that</p> <p>21 you did not copy the words from Genetic</p> <p>22 Home Reference that we have highlighted</p> <p>23 that correspond by number to the portions</p> <p>24 in your report for purposes of preparing</p>	<p>1 were to do this over, I would use</p> <p>2 quotation marks.</p> <p>3 BY MR. HEGARTY:</p> <p>4 Q. You're not telling us,</p> <p>5 Doctor, that if you prepared an article</p> <p>6 for publication in a journal, that you</p> <p>7 would take references from another source</p> <p>8 like Genetic Home Reference, include them</p> <p>9 in the article, verbatim, not use</p> <p>10 quotation marks and not reference that</p> <p>11 cite. Is that what you're saying?</p> <p>12 MS. O'DELL: Objection to</p> <p>13 form.</p> <p>14 THE WITNESS: I'm standing</p> <p>15 on my interpretation, and that is</p> <p>16 that in a reference that I would</p> <p>17 prepare in a publication, it would</p> <p>18 be accepted for peer review if</p> <p>19 there was something that I felt</p> <p>20 was common knowledge, that I would</p> <p>21 not reference it.</p> <p>22 To your point, if I had to</p> <p>23 do this over, I would have put</p> <p>24 quotation marks around this.</p>

25 (Pages 94 to 97)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 98</p> <p>1 BY MR. HEGARTY:</p> <p>2 Q. You would have cited to the</p> <p>3 authority, as well, from which that --</p> <p>4 those passages were lifted, correct?</p> <p>5 MS. O'DELL: Objection to</p> <p>6 form.</p> <p>7 THE WITNESS: I certainly</p> <p>8 could if that was a concern from</p> <p>9 the journal or from the reviewer,</p> <p>10 then I would definitely put in the</p> <p>11 reference.</p> <p>12 BY MR. HEGARTY:</p> <p>13 Q. If a student had prepared</p> <p>14 this, and you became aware that the</p> <p>15 student had lifted portions from Genetic</p> <p>16 Home Reference without any citation,</p> <p>17 without acknowledging where it came from,</p> <p>18 would that be okay with you?</p> <p>19 MS. O'DELL: Objection to</p> <p>20 form.</p> <p>21 THE WITNESS: There are --</p> <p>22 this is a large document. And in</p> <p>23 order for something to be copied</p> <p>24 or, as you put it, plagiarized,</p>	<p style="text-align: right;">Page 100</p> <p>1 will not -- this is the -- what</p> <p>2 you gave me was an interpretation,</p> <p>3 was NYU policy, an interpretation</p> <p>4 of that, which is not the same as</p> <p>5 mine.</p> <p>6 BY MR. HEGARTY:</p> <p>7 Q. Well, you do agree, though,</p> <p>8 that between the -- your report, the</p> <p>9 portions taken from your report and the</p> <p>10 Genetic Home Reference reference are</p> <p>11 identical?</p> <p>12 MS. O'DELL: Object to the</p> <p>13 form.</p> <p>14 THE WITNESS: I agree that</p> <p>15 there are sentences that are</p> <p>16 identical. Yes.</p> <p>17 BY MR. HEGARTY:</p> <p>18 Q. You did not acknowledge that</p> <p>19 source anywhere in your report, correct?</p> <p>20 A. If you say so.</p> <p>21 Q. Do you think that's okay to</p> <p>22 do that?</p> <p>23 MS. O'DELL: Objection to</p> <p>24 form.</p>
<p style="text-align: right;">Page 99</p> <p>1 there has to be a certain amount</p> <p>2 or percentage of the document that</p> <p>3 has to be the same.</p> <p>4 And this document, my</p> <p>5 report, is quite large. So if a</p> <p>6 student prepared this, and their</p> <p>7 term paper, for example, was 50</p> <p>8 pages, I would let them know that</p> <p>9 if prepared the next time they</p> <p>10 might want to put in a reference.</p> <p>11 But I would have to look at</p> <p>12 the entire size of the document</p> <p>13 and the percentage of it which had</p> <p>14 similar -- similar statements and</p> <p>15 sentences.</p> <p>16 BY MR. HEGARTY:</p> <p>17 Q. You do agree that under the</p> <p>18 policy we marked, we're talking about</p> <p>19 what you did with regard to this Genetics</p> <p>20 Home Reference cite, meets the definition</p> <p>21 of plagiarism?</p> <p>22 MS. O'DELL: Objection to</p> <p>23 form.</p> <p>24 THE WITNESS: I certainly</p>	<p style="text-align: right;">Page 101</p> <p>1 THE WITNESS: If I had not</p> <p>2 thought it was okay, I would not</p> <p>3 have done it.</p> <p>4 BY MR. HEGARTY:</p> <p>5 Q. Would that -- would that be</p> <p>6 acceptable for purposes of publishing</p> <p>7 your report?</p> <p>8 MS. O'DELL: Objection to</p> <p>9 the form.</p> <p>10 THE WITNESS: My opinion</p> <p>11 stands. And that is my</p> <p>12 interpretation of what is okay to</p> <p>13 do based on common knowledge and</p> <p>14 multiple sources, stands the same.</p> <p>15 BY MR. HEGARTY:</p> <p>16 Q. If you were to publish your</p> <p>17 report, as it is, would you go back and</p> <p>18 use quotation marks and cite the</p> <p>19 reference that we just looked at --</p> <p>20 A. If I had --</p> <p>21 Q. -- Exhibit Number 16?</p> <p>22 MS. O'DELL: Excuse me,</p> <p>23 Doctor. Just let him finish.</p> <p>24 THE WITNESS: Of course.</p>

26 (Pages 98 to 101)

Judith Zelikoff, Ph.D.

Page 102	Page 104
<p>1 I'm sorry. 2 MS. O'DELL: Thank you. And 3 just give me a moment to object. 4 Thank you. 5 BY MR. HEGARTY: 6 Q. Did you hear my question? 7 A. Could you repeat your 8 question, please? 9 Q. Sure. If you were to 10 publish a report as it is, would you go 11 back and use quotation marks and cite the 12 reference that we just looked at in 13 Exhibit Number 16? 14 A. Now that you've pointed out 15 your interpretation of it, I would 16 certainly consider that. 17 (Document marked for 18 identification as Exhibit 19 Zelikoff-16.) 20 BY MR. HEGARTY: 21 Q. Let me show you what I'm 22 next marking as Exhibit Number 16. 23 MS. O'DELL: I'll reach 24 over, instead of you throwing it.</p>	<p>1 increased release of ROS." 2 That is a very common -- 3 commonly known point. 4 BY MR. HEGARTY: 5 Q. How about Point Number 4 in 6 the abstract? 7 A. As -- 8 Q. That's -- is it your 9 testimony that Point Number 4 in the 10 abstract is what you consider common 11 knowledge? 12 A. "Activation of the 13 transcription factors can lead to the 14 expression of over 500 genes, including 15 more for growth factors." And I'm going 16 to read the entire abstract. 17 Actually this is a review 18 paper. And this is not a unique finding 19 to this particular author. 20 And thus "Activation of 21 transcription factors," again as I read, 22 is an outcome of many, many authors. And 23 as I said, is a review paper, not a 24 unique investigator-initiated outcome.</p>
Page 103	Page 105
<p>1 BY MR. HEGARTY: 2 Q. This is another portion of 3 your report which we've correspondingly 4 referenced to an article by Simone 5 Reuter. And you can see where we've 6 identified six different times where 7 sentences have been copied verbatim from 8 this article without any quotation or any 9 acknowledgment of its -- of the source. 10 Do you see that? 11 MS. O'DELL: Object -- 12 excuse me. Object to the form. 13 Feel free to review it, the 14 reference or the exhibit. There 15 are two things paper clipped 16 together, if you need to look at 17 it in more detail. 18 THE WITNESS: Again, there 19 are sentences such as, "During 20 inflammation macrophages, mast 21 cells, and neutrophils were 22 recruited at the site of damage, 23 leads to a respiratory burst and 24 increased uptake of oxygen, and an</p>	<p>1 Q. You keep referring to common 2 knowledge. Who is -- who has this common 3 knowledge? 4 A. People who read scientific 5 journals. 6 Q. So is it your testimony that 7 someone who would read your report would 8 understand that that is not -- those are 9 not your words but taken from 10 somewhere -- somewhere else? 11 MS. O'DELL: Object to the 12 form. 13 THE WITNESS: It would 14 depend upon who is reading it. 15 BY MR. HEGARTY: 16 Q. Can you cite for me any 17 publication that you have ever written 18 where you have cited another authority 19 word for word and did not use quotation 20 marks and did not reference that 21 authority? 22 A. Not off the top of my head. 23 Q. But you did do that in your 24 expert report in this case, correct?</p>

27 (Pages 102 to 105)

Judith Zelikoff, Ph.D.

Page 106	Page 108
<p>1 MS. O'DELL: Object to the 2 form. 3 THE WITNESS: It appears 4 from what you're showing me, that 5 in my interpretation of common 6 knowledge and multiple -- multiple 7 investigators, I have done that, 8 yes. 9 (Document marked for 10 identification as Exhibit 11 Zelikoff-17.) 12 BY MR. HEGARTY: 13 Q. I'm going to mark next 14 Exhibit Number 17, another portion of 15 your report where you, again, take 16 sentences from a publication called 17 EnvironmentalChemistry.com. 18 You cite them word for word 19 in your report and you make no reference 20 anywhere in your report to this 21 authority. 22 A. I said -- 23 MS. O'DELL: Excuse me. 24 Excuse Me, Doctor. Excuse me.</p>	<p>1 MS. O'DELL: Object to the 2 form. 3 THE WITNESS: Yes, I see 4 what you're saying. 5 BY MR. HEGARTY: 6 Q. And nowhere in your report 7 do you give acknowledgment to 8 EnvironmentalChemistry.com as a source of 9 the information that you copied, correct? 10 MS. O'DELL: Object to the 11 form. 12 THE WITNESS: I do say the 13 U.S. EPA defines asbestos by 14 limiting the term to six specific 15 fibrous minerals from two distinct 16 groups. And I go on from there. 17 That is a referral to the U.S. 18 EPA. 19 BY MR. HEGARTY: 20 Q. Doctor, nowhere in your 21 report, in those notebooks or anywhere do 22 you cite to EnvironmentalChemistry.com, 23 do you? 24 MS. O'DELL: Object. Object</p>
Page 107	Page 109
<p>1 MR. HEGARTY: I'm not 2 finished with my question. 3 MS. O'DELL: I thought you 4 were finished with your question. 5 MR. HEGARTY: Because I just 6 made a statement. 7 MS. O'DELL: Well, I object 8 to the statement. You ask your 9 question, and I'll probably object 10 to that. 11 But give me a chance, the 12 two of you, please. 13 BY MR. HEGARTY: 14 Q. Let me -- Doctor, this -- 15 the reference that we have here in the 16 Exhibit Number 17 is to a website called 17 EnvironmentalChemistry.com. Did you 18 review this website in preparing your 19 report? 20 A. I don't recall. 21 Q. Do you see where we make 22 reference to five different places where 23 you copied word for word from 24 EnvironmentalChemistry.com?</p>	<p>1 to the form. 2 THE WITNESS: Not to my 3 knowledge. 4 EnvironmentalChemistry.com, I 5 don't even recall reviewing it. 6 BY MR. HEGARTY: 7 Q. But don't you agree that you 8 would have had to review it based on the 9 fact that there are identical sentences 10 taken from -- that are identical 11 sentences, in Environmental Chemistry and 12 in your report? 13 MS. O'DELL: Object to the 14 form. 15 THE WITNESS: This -- again, 16 this information is common 17 knowledge. This is not a creation 18 of EnvironmentalChemistry.com. 19 They are not an individual 20 investigator finding this data. 21 They are reporting this data on 22 the internet for people's review. 23 BY MR. HEGARTY: 24 Q. Is</p>

28 (Pages 106 to 109)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 110</p> <p>1 EnvironmentalChemistry.com a reliable 2 authority? 3 MS. O'DELL: Object to the 4 form. 5 THE WITNESS: I have no 6 idea -- sorry. 7 MS. O'DELL: Go ahead. 8 THE WITNESS: I have no idea 9 of the impact factor or the 10 reliability of this. However, in 11 talking about this, and saying the 12 things that I -- that you have 13 said I have used identically, 14 which appear to be the case -- 15 "while amphibole and serpentine 16 asbestos may have fibrous habits, 17 they have very different forms. 18 Amphibole are double-chain 19 silicates." 20 This is known in the 21 asbestos -- in the asbestos 22 literature. And the basic 23 structural unit is silicone oxide. 24 This is not Environmental</p>	<p style="text-align: right;">Page 112</p> <p>1 published methodology which says that 2 your interpretation of what you are to 3 quote and what you are to cite in an 4 article is an accepted methodology in 5 publishing scientific literature? 6 A. It's my professional opinion 7 after 30 years of work. 8 Q. Well, can you cite for me 9 any published authority that says your 10 definition of what you are to cite and 11 what you are to reference is the 12 definition that's applicable to medical 13 literature? 14 MS. O'DELL: Objection to 15 form. 16 THE WITNESS: I have never 17 been accused or cited by any 18 publication in any of my 135 19 papers or my over 30 book chapters 20 of having anything that was of a 21 dubious nature, ever. 22 BY MR. HEGARTY: 23 Q. That's not my question. My 24 question was can you cite for me any</p>
<p style="text-align: right;">Page 111</p> <p>1 Chemistry's individual 2 investigator initiated. 3 I think you may be confusing 4 an individual paper where an 5 investigator sits down in the 6 laboratory and works out or comes 7 up with a fact and that it's his. 8 As opposed to data that's just out 9 there in the internet, out there 10 in the world, out there in book 11 chapters, out there everywhere, 12 that people know. 13 This is not an investigator 14 initiated, whether it's 15 EnvironmentalChemistry.com. 16 So I will -- I will say to 17 you that in many cases, I did use 18 the same sentence. Certainly 19 EnvironmentalChemistry.com is not 20 an investigator-initiated point of 21 reference. It's just facts that 22 are supported by other experts. 23 BY MR. HEGARTY: 24 Q. Can you cite for me any</p>	<p style="text-align: right;">Page 113</p> <p>1 written authority that says that in 2 publishing medical literature, if you're 3 citing what you call general knowledge 4 word for word from another source, you 5 don't have to quote it and you do not 6 have to give it any reference. 7 A. Just my professional opinion 8 of 30 years of work. 9 Q. Okay. And in a -- and 10 you've never done that in any medical 11 article you -- any article you have 12 published, correct? 13 A. I cannot -- I cannot speak 14 to all. 15 Q. Well, if you were to write a 16 medical article -- a scientific article 17 today, and you were to quote something 18 from -- take something word for word from 19 EnvironmentalChemistry.com, is it your 20 testimony you wouldn't give any reference 21 to it or wouldn't use quotation marks? 22 MS. O'DELL: Object to the 23 form. 24 THE WITNESS: I -- I stand</p>

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 114</p> <p>1 on the opinion that I have, that 2 it would be common knowledge. 3 BY MR. HEGARTY: 4 Q. That's not my question. My 5 question is if you were to write an 6 article today and you were to cite 7 Environmental.com word for word, is it 8 your testimony you would not quote 9 that -- those words or give any reference 10 or acknowledgment to environmental -- 11 to -- 12 A. EnvironmentalChemistry.com. 13 Q. EnvironmentalChemistry.com? 14 MS. O'DELL: Object to the 15 form. 16 THE WITNESS: I would do the 17 same thing I've done for this 18 report. 19 BY MR. HEGARTY: 20 Q. Okay. And is that true for 21 every resource that we've looked at so 22 far? You would -- if you were to write a 23 scientific journal today, you would -- 24 and quoted from all those resources, you</p>	<p style="text-align: right;">Page 116</p> <p>1 that you have copied verbatim from that 2 publication without giving any 3 acknowledgment to Dr. Rakoff-Nahoum or 4 use any quotation marks. Do you see 5 that? 6 MS. O'DELL: Object to the 7 form. 8 THE WITNESS: So on Page 124 9 of the review by Seth 10 Rakoff-Nahoum -- Nahoum, if you 11 look on -- under cancer and 12 inflammation, and one of the 13 points that you make here -- and 14 by the way, this is a review 15 paper, again not an independent 16 investigator-initiated data from 17 the laboratory -- "Epidemiological 18 evidence points to a connection 19 between inflammation and" -- "and 20 predisposition for the development 21 of cancer, i.e., long-term 22 inflammation leads to the 23 development of dysplasia," there's 24 no reference there.</p>
<p style="text-align: right;">Page 115</p> <p>1 would not use quotation marks and you 2 would not give any acknowledgment in 3 any -- if you were to write a scientific 4 article today? 5 MS. O'DELL: Object to form. 6 Misstates her testimony. 7 THE WITNESS: I -- I did say 8 that there are certain cases that 9 if I had to do it over and based 10 upon your rigorous opinion of 11 this, that I would place quotation 12 marks or add a reference, yes. 13 (Document marked for 14 identification as Exhibit 15 Zelikoff-18.) 16 BY MR. HEGARTY: 17 Q. I'm going to show you what 18 I'm next marking as Exhibit 18. 19 This is another portion of 20 your report. In addition to that 21 exhibit -- or with that exhibit is a 22 reference to a publication by 23 Rakoff-Nahoum, where you again made 24 references to four different sentences</p>	<p style="text-align: right;">Page 117</p> <p>1 So this author also, 2 Dr. Rakoff-Nahoum -- sorry, I'm 3 murdering his name -- also gives 4 no reference to that. 5 Again, in this case, using 6 my analogy of something that has 7 been gathered by numerous other 8 investigators and is common 9 knowledge to the -- to the 10 scientific population, he did also 11 not use a reference. And I did 12 not use a reference. 13 BY MR. HEGARTY: 14 Q. But if -- but if you look at 15 his -- the last reference, Number 4, he 16 does acknowledge a resource for all of 17 those statements, Resource 20 in the 18 publication, correct? 19 MS. O'DELL: Objection. 20 Could you provide, if you're 21 going to use this exhibit, provide 22 the full manuscript that 23 identifies Resource 20. 24 (Document marked for</p>

30 (Pages 114 to 117)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 118</p> <p>1 identification as Exhibit 2 Zelikoff-20.) 3 BY MR. HEGARTY: 4 Q. I'll mark as 20, the 5 entirety of the Rakoff-Nahoum article, 6 which does include 20, which is a 7 reference to Hussain, "Radical Causes of 8 Cancer." 9 A. Citation 20 in Exhibit 20 is 10 also a review paper, and none of these 11 references are going back to the 12 independent investigator who actually 13 said this. 14 So these are reviewed in. 15 Again, standing by my opinion that 16 oftentimes in review articles which -- 17 in -- in review articles, they often take 18 the liberty, as seen in your first point, 19 that you do not use a reference. 20 Now, I would have to read 21 Reference 20 in order to see whether 22 that, in fact, reviews Points 2, 3 and 4 23 in your "Why Cancer and Inflammation" 24 paper.</p>	<p style="text-align: right;">Page 120</p> <p>1 publication by OSHA for purposes of your 2 report. Do you see that? 3 MS. O'DELL: Objection to 4 form. 5 THE WITNESS: I do see what 6 you're pointing to. I also will 7 tell you that Point 1 that you 8 point out in the OSHA United 9 States Department of Labor, on 10 hexavalent chromium, which is off 11 the internet, adverse health 12 effects associated, yes, I used 13 adverse health -- health effects 14 other than cancer, and then I had 15 these different words. 16 I'm just explaining what I 17 see. 18 With chromium-6, hexavalent 19 chromium exposure include 20 occupational asthma, eye 21 irritation and damage, perforated 22 ear drums, et cetera, et cetera. 23 This can be found in numerous, 24 numerous references. This again</p>
<p style="text-align: right;">Page 119</p> <p>1 I do not know that 2 Reference 20 actually reviews all of 3 these points and are the reference. 4 Also, many of these 5 points -- and again, another review 6 paper. 7 Many of these points, the 8 chronic inflammatory states associated 9 with infection, irritation, may lead to 10 environments that foster genomic lesions 11 in tumor initiation, no reference there. 12 One effect and mechanism, et 13 cetera, et cetera. Hydroxyl radicals, 14 reactive oxygen species, no reference 15 there. No quotation marks. 16 So I don't know whether he, 17 in fact, uses the same logic that I did. 18 (Document marked for 19 identification as Exhibit 20 Zelikoff-19.) 21 BY MR. HEGARTY: 22 Q. I'm going to show you 23 Exhibit 19. This is another reference 24 where you copied portions of a</p>	<p style="text-align: right;">Page 121</p> <p>1 is common knowledge for anyone 2 doing chromium -- chromium 3 studies. 4 Again, did I use the same 5 words? In many cases, I did here. 6 "Can also develop an 7 allergic skin reaction called 8 allergic contact dermatitis." I'm 9 not quite sure how else you can 10 say that, that phrase. 11 So I still feel confident in 12 what I did was based upon my 13 professional judgment. 14 (Document marked for 15 identification as Exhibit 16 Zelikoff-21.) 17 BY MR. HEGARTY: 18 Q. Okay. I'll show you what I 19 next marked as Exhibit 21. Exhibit 21 is 20 again a portion of your report where we 21 have identified statements that are taken 22 verbatim without acknowledgment from the 23 publication attached thereto by Kasprzak. 24 A. Kasprzak. I'm sorry, sir.</p>

31 (Pages 118 to 121)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 122</p> <p>1 MS. O'DELL: Did you finish 2 your question? 3 BY MR. HEGARTY: 4 Q. No. Do you see where I'm 5 talk -- do you see where I'm referencing? 6 MS. O'DELL: Object to form. 7 THE WITNESS: I -- 8 MS. O'DELL: Take a moment 9 if you need to, Doctor. 10 THE WITNESS: So what I see 11 in the abstract of a paper, a 12 review paper called Nickel 13 Carcinogenesis by Kasprzak and 14 Sunderman and Konstantine 15 Salnikow, you say -- you're 16 pointing to, "The exact mechanisms 17 of nickel-induced carcinogenesis 18 are not known and have been 19 subject of numerous 20 epidemiological and experimental 21 investigations." 22 That is not -- that -- okay. 23 And what's in my paper is, "The 24 exact mechanisms of nickel-induced</p>	<p style="text-align: right;">Page 124</p> <p>1 risks are primarily related to 2 exposure to soluble nickel 3 concentrations," et cetera, et 4 cetera. 5 But in many cases throughout 6 this reference, I can also -- it 7 being a review paper, I can also 8 tell you there's epidemiological 9 evidence on possible cancer risk 10 from general environment and 11 dietary nickel exposures not cited 12 as a reference, not quoted. 13 BY MR. HEGARTY: 14 Q. Are you finished? 15 A. I am, thank you. 16 THE WITNESS: Excuse me. 17 May I just point out that it's 18 getting even colder in here and 19 I'm a bit uncomfortable. 20 (Whereupon, a discussion was 21 held off the record.) 22 THE WITNESS: May I go get 23 my scarf? 24 MR. HEGARTY: Off the</p>
<p style="text-align: right;">Page 123</p> <p>1 cainogenesis are not known but 2 likely involve genetic and 3 epigenetic routes." 4 That's not the same as this 5 sentence. It has portions of the 6 same, but not the entire sentence 7 is the same. 8 "Are likely to evolve 9 genetic and epigenetic routes." 10 Not quite sure how else you would 11 say this. 12 And this again is a review 13 paper. And going through it, here 14 I can cite a sentence. 15 "Occupational exposure to nickel 16 occurs predominately in mining, 17 refining, alloy production, 18 electroplating, and welding." 19 This is in the review by Kasprzak. 20 There's no reference there either. 21 In this sentence, "In 1990 22 the International Committee on 23 Nickel Carcinogenesis in Man 24 suggested that respiratory cancer</p>	<p style="text-align: right;">Page 125</p> <p>1 record. 2 THE VIDEOGRAPHER: The time 3 is 11:11 a.m. Off the record. 4 (Short break.) 5 THE VIDEOGRAPHER: The time 6 is 11:23 a.m. Back on record. 7 (Documents marked for 8 identification as Exhibits 9 Zelikoff-25 through 32.) 10 MR. HEGARTY: We're back on 11 the record. I'm going to mark -- 12 I've marked as Exhibits 25 through 13 32, other examples taken from 14 Dr. Zelikoff's report where -- 15 along with the references to which 16 they were taken. And I'm just 17 going to mark those for purposes 18 of the deposition as those 19 exhibits. 20 MS. O'DELL: What's the 21 exhibit number? 22 MR. HEGARTY: Exhibits 25 23 through 32, and I did skip over 24 through 22 through 24, but I'll</p>

32 (Pages 122 to 125)

Judith Zelikoff, Ph.D.

Page 126	Page 128
<p>1 come back to it. So we did get 2 kind of out of order in the way I 3 marked those. 4 MS. O'DELL: So plaintiff 5 objects to the Exhibit 25 through 6 32 being added to the record. 7 There's no testimony from 8 Dr. Zelikoff. So any assertion 9 that counsel has made that those 10 are relevant, we would object 11 and -- and oppose their being 12 included. 13 BY MR. HEGARTY: 14 Q. Doctor, if you would look at 15 your report which is Exhibit Number 2. 16 A. Yes, sir. 17 Q. On Page 2 of your report, 18 under the section Mandate and 19 Methodology? 20 A. Yes, sir, I see it. 21 Q. You say your mandate was to 22 look at the scientific literature and 23 assess whether there is biologic 24 plausibility for talc to cause ovarian</p>	<p>1 A. That was my -- that was -- 2 the request was to assess biological 3 plausibility. 4 Q. You say in that portion that 5 we just reviewed that -- you say for the 6 increased risk of ovarian cancer with 7 talc use. Did you assume for purposes of 8 your report that there is, in fact, an 9 increased risk of ovarian cancer with 10 talc use? 11 A. I'm sorry, sir, can you tell 12 me exactly which paragraph? 13 Q. In the first paragraph under 14 the section Mandate and Methodology, you 15 say "assess whether there is biologic 16 plausibility" -- "biologically plausible 17 explanation for the increased risk of 18 ovarian cancer with the perineal use of 19 talcum powder products." 20 Do you see that? See where 21 I'm reading? 22 A. I am sorry, sir, I do not. 23 Q. First paragraph under 24 page -- on Page 2 under mandate and</p>
Page 127	Page 129
<p>1 cancer from perineal use; is that 2 correct? 3 MR. GOLOMB: I'm sorry. 4 What page are you on? 5 MR. HEGARTY: Page 2. 6 THE WITNESS: Are you done? 7 BY MR. HEGARTY: 8 Q. Yes. 9 A. My mandate was to review the 10 scientific literature and assess whether 11 there was biological plausible 12 explanation for the increased risk of 13 ovarian cancer with perineal use of 14 talcum powder products, yes, that is 15 correct. 16 Q. Who gave you that mandate? 17 A. That was the plaintiff 18 attorney, Ms. Emory [sic] and Ms. O'Dell. 19 Q. You say -- 20 A. They -- I -- but let me add 21 they -- when you say gave me that 22 mandate, can you explain what you mean by 23 gave me that mandate? 24 Q. Well, from --</p>	<p>1 methodology. 2 A. Is that the notion of 3 biological plausibility paragraph, or are 4 you -- 5 Q. It's the first paragraph 6 under the section Mandate and 7 Methodology. 8 A. Well, sir, there are two, 9 two paragraphs. One says mandate. I was 10 asked to review the scientific 11 literature. Then there is another 12 paragraph that says the notion of 13 biological plausibility is 14 multifactorial. 15 Q. Doctor, if you'd listen to 16 my question. I said the first paragraph 17 under mandate and methodology. Do you 18 understand that? 19 A. I do not -- I do not see it 20 and you can -- 21 Q. You don't see the first 22 paragraph that begins mandate? 23 A. I just read that to you, 24 sir.</p>

33 (Pages 126 to 129)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 130</p> <p>1 Q. And -- and you understand 2 that's the first paragraph of -- under 3 the section Mandate and Methodology? 4 A. Under mandate it says, "I 5 was asked to review the scientific 6 literature and assess whether there is 7 biological plausible explanation for the 8 increased risk of ovarian cancer and the 9 perineal use of talcum powder products." 10 Q. And for purposes of your 11 mandate, did you assume that there was, 12 in fact, an increased risk of ovarian 13 cancer with the perineal use of talcum 14 powder? 15 A. I made no assumptions. 16 Q. Did you individually assess 17 whether there is an increased risk of 18 ovarian cancer with the perineal use of 19 talcum powder products? 20 A. Could you please slow down? 21 You are asking the question very quickly. 22 Q. Okay. Did you 23 individually -- did you do an analysis of 24 whether there's an increased risk of</p>	<p style="text-align: right;">Page 132</p> <p>1 Q. What graduate students 2 assisted you? 3 A. Are you asking me for their 4 names? 5 Q. Yes. 6 A. Nick Lawrence who was a 7 master student. And Catherine Fecchi who 8 was my master student. Both of them have 9 which graduated. 10 Q. Did you bill plaintiffs' 11 counsel for their time? 12 A. I paid them out of my 13 pocket. 14 Q. And how much did you pay 15 them per hour? 16 A. \$25 per hour. 17 Q. Do you describe -- strike 18 that. 19 Anyone else assist you with 20 your literature search? 21 A. I'm sorry, anyone else? 22 Q. Assist you in your 23 independent comprehensive literature 24 review.</p>
<p style="text-align: right;">Page 131</p> <p>1 ovarian cancer with perineal use of 2 talcum powder products? 3 A. No. As you can see by the 4 mandate I was asked to assess the 5 biological plausibility. I did no 6 analysis of causation. 7 Q. You did no analysis of 8 whether there is, in fact, an increased 9 risk of ovarian cancer with the perineal 10 use of talcum powder products? 11 A. I did no analysis of 12 causation. I'm not an epidemiologist. 13 Q. You also discuss in the 14 third paragraph, which begins "I 15 performed an independent comprehensive 16 literature review." 17 A. I see that, yes. Thank you. 18 Q. That you did do a literature 19 search, correct? 20 A. I did do a literature 21 search, correct. 22 Q. Did you do this yourself? 23 A. I did do this myself along 24 with several graduate students.</p>	<p style="text-align: right;">Page 133</p> <p>1 A. No, sir. 2 Q. So doing the searches was 3 part of your methodology for preparing 4 your report, correct? 5 A. Doing the searches were my 6 initial, my initial, yes. 7 Q. Did you prepare in advance a 8 written protocol on how you were going to 9 do the searches? 10 A. I followed the same protocol 11 that I used for papers, publications, 12 advisory boards, grant -- grant reviews 13 and grants that I write. 14 Q. That's not my question. My 15 question is, did you prepare a written 16 protocol as far as how you were going to 17 do the literature review for purposes of 18 your report? 19 A. I did not do a written 20 outline as to how to do this. I've been 21 doing this for over 35 years. 22 Q. You agree that it was part 23 of your methodology is -- for your 24 literature search, to find and review all</p>

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 134</p> <p>1 literature that touch on talc and its 2 biologic effects, correct? 3 MS. O'DELL: Object to the 4 form. 5 THE WITNESS: My purpose was 6 to examine the literature, assess 7 the literature, first identify the 8 literature that I felt was -- 9 well, all -- all the literature 10 that I could find or that the 11 students could find, and from me 12 to review them in terms of 13 relevancy and pertinence to the 14 question that I was being asked. 15 BY MR. HEGARTY: 16 Q. Did you do any testing of 17 your methodology of doing searches to 18 ensure that you had captured all the 19 relevant literature? 20 MS. O'DELL: Object to the 21 form. 22 THE WITNESS: What do you 23 mean by testing? 24 BY MR. HEGARTY:</p>	<p style="text-align: right;">Page 136</p> <p>1 reviewed all of the literature out 2 there. I have no way of knowing 3 that I reviewed or have not. 4 I gathered the literature in 5 a systematic fashion and I 6 reviewed that literature. 7 BY MR. HEGARTY: 8 Q. Did you read every paper 9 that you found from your literature 10 search? 11 A. Only those that were 12 relevant. I read the abstracts to 13 determine whether it was in fact related 14 to the question that I was being asked. 15 When you do a literature 16 search, you come up with things that are 17 related and some that are not related at 18 all. 19 Q. Does your report anywhere 20 describe or include a description of how 21 you weighed the various authorities that 22 you reviewed? 23 A. My report talks about under 24 mandate and methodology how I -- the last</p>
<p style="text-align: right;">Page 135</p> <p>1 Q. Well, I don't know. Did you 2 do any tests, having someone else do 3 searches, repeating the searches, to see 4 if your original searches captured all of 5 the relevant literature? 6 A. We did several searches 7 doing -- using different words and 8 different aspects, so that we could -- we 9 got numerous duplicates because we came 10 in with different words, and key -- 11 keywords and key phrases. 12 Q. You do agree that it would 13 be necessary for a proper methodology to 14 reach opinions about biologic 15 plausibility, that you have reviewed all 16 the pertinent literature, correct? 17 MS. O'DELL: Object to the 18 form. 19 THE WITNESS: To my 20 knowledge I reviewed the 21 literature that was pertinent to 22 the question that I was being 23 asked. 24 I am not stating that I</p>	<p style="text-align: right;">Page 137</p> <p>1 paragraph, and that begins more than 300 2 publications, will -- talks about how 3 I -- how I looked at the publications and 4 how I decided how to cut down or dismiss 5 certain papers based on a closer 6 scrutiny. And I focused specifically for 7 biological plausibility and being a 8 toxicologist on in vitro, in vivo, and ex 9 vivo studies as well as cell studies, 10 animal studies, and tissues. 11 Q. Did you assign any numerical 12 value to each authority as they relate to 13 the importance to you? 14 A. I did not assign any 15 numerical value. There was no 16 quantitative measurement done. 17 Q. Was it also part of your 18 methodology to review all expert reports 19 in the litigation that concerned biologic 20 plausibility? 21 MS. O'DELL: Object to the 22 form. 23 THE WITNESS: Can you ask me 24 that again, please.</p>

35 (Pages 134 to 137)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 138</p> <p>1 BY MR. HEGARTY: 2 Q. Sure. Was it part of your 3 methodology to review all expert reports 4 in the litigation concerning biologic 5 plausibility? 6 A. I -- I looked at reports 7 that had relevancy in terms of animal 8 models, in vitro cultures or ex vivo 9 studies, yes. My opinion was formed 10 primarily by the publications and the 11 science that I reviewed. 12 Q. Was it part of your 13 methodology for purposes of your opinions 14 to review the expert witness reports from 15 the litigation that touch on biologic 16 plausibility? 17 MS. O'DELL: Object to the 18 form. Asked and answered. 19 THE WITNESS: I reviewed the 20 publications and the book chapters 21 and information that I thought 22 would go towards my -- my opinion. 23 BY MR. HEGARTY: 24 Q. Your expert report, as we</p>	<p style="text-align: right;">Page 140</p> <p>1 THE WITNESS: To my 2 knowledge, I have no knowledge as 3 to how they selected the reports 4 or which reports they selected to 5 send. 6 BY MR. HEGARTY: 7 Q. You didn't have -- get a 8 list of all expert reports and decide 9 which ones you wanted, correct? 10 MS. O'DELL: Object to the 11 form. 12 THE WITNESS: I -- no. I 13 did not get a list of an entirety. 14 BY MR. HEGARTY: 15 Q. Do you know plaintiffs' 16 counsel methodology for purposes of 17 selecting the reports to provide to you? 18 A. I do not know their 19 methodology, but I would guess since 20 papers were supplied to me that had both 21 opinions and conclusions that led to 22 either positive associations or lack of 23 positive or data from scientific in vivo 24 studies, et cetera, that showed effects</p>
<p style="text-align: right;">Page 139</p> <p>1 have looked at, includes references to 2 several other experts' reports, correct? 3 We looked at that earlier. 4 A. If you say so, yes. 5 Q. Did you select those expert 6 reports for purposes of your review? 7 MS. O'DELL: Object to the 8 form. 9 THE WITNESS: I formed my 10 opinion with contributions from 11 some of the reports that I had. 12 But it was primarily based upon 13 literature reviews. 14 BY MR. HEGARTY: 15 Q. The reports that you had 16 were provided to you by plaintiffs' 17 counsel, correct? 18 A. Reports that I received was 19 supplied to me by plaintiffs' counsel. 20 Q. They selected the reports 21 that they were going to provide to you, 22 correct? 23 MS. O'DELL: Object to the 24 form.</p>	<p style="text-align: right;">Page 141</p> <p>1 and no effects, I would assume that I got 2 all the literature both -- from both 3 perceptions. 4 Q. Can you identify any medical 5 literature that you had reviewed prior to 6 being contacted by Ms. Emmel? 7 A. Medical literature on? 8 Q. Let me finish my question. 9 A. I'm sorry. 10 Q. Can you identify any 11 scientific or medical literature that you 12 reviewed before being contacted by 13 Ms. Emmel concerning talc and ovarian 14 cancer? 15 A. There is no literature that 16 I reviewed prior to me being contacted by 17 Ms. Emmel. 18 Q. Also in Exhibit B -- 19 A. B as in boy? 20 Q. -- boy -- to your report. 21 There is a listing of produced documents 22 by Bates number. 23 A. Correct. I see it, 24 "materials and data considered."</p>

36 (Pages 138 to 141)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 142</p> <p>1 Q. Did the plaintiffs' counsel 2 provide you with copies of those 3 documents? 4 A. I have not gone through 5 every paper in those multiple binders. I 6 would assume that many of them are in 7 there. 8 Q. That's not my question, 9 Doctor. My question was, were those 10 documents provided to you by counsel for 11 plaintiffs? 12 MS. O'DELL: What documents 13 are you referring to? 14 MR. HEGARTY: The documents 15 that are listed by Bates number in 16 Exhibit B. 17 THE WITNESS: Oh, you're 18 talking about produced documents? 19 BY MR. HEGARTY: 20 Q. Yes. 21 A. Repeat your question, 22 please. 23 Q. Sure. Were the documents 24 listed by Bates number under produced</p>	<p style="text-align: right;">Page 144</p> <p>1 section "produced documents"? 2 A. I reviewed all of the 3 documents that are in the binder listed 4 as production documents. I did not check 5 one for another, so I cannot say I did 6 all of these -- 7 Q. Did you receive -- 8 A. -- or they did not. 9 Q. I'm sorry. Did you receive 10 from counsel from plaintiffs all the 11 documents that have been produced in this 12 litigation that concerned biologic 13 plausibility? 14 MS. O'DELL: Object to the 15 form. 16 THE WITNESS: I have no 17 knowledge of whether I received 18 every single document there is out 19 there. 20 BY MR. HEGARTY: 21 Q. Did you ask for -- did you 22 ask counsel for plaintiffs to provide you 23 all the documents that have been produced 24 in this case concerning biologic</p>
<p style="text-align: right;">Page 143</p> <p>1 documents provided to you by counsel for 2 plaintiffs? 3 A. Produced documents were 4 supplied to me in the folder that is 5 listed, production documents. 6 Q. Did you ask for those 7 specific documents? 8 A. I did not. 9 Q. Do you know what the 10 methodology was for selecting those 11 specific documents to send to you? 12 A. I do not. 13 MS. O'DELL: Object to the 14 form. 15 THE WITNESS: Sorry. 16 BY MR. HEGARTY: 17 Q. Did you ask for any 18 additional documents that would fall 19 under the definition of produced 20 documents besides those plaintiffs' 21 counsel provided to you? 22 A. Not to my knowledge. 23 Q. Did you review all the 24 documents that are listed under the</p>	<p style="text-align: right;">Page 145</p> <p>1 plausibility? 2 MS. O'DELL: Object to the 3 form. 4 THE WITNESS: Did not ask it 5 in that manner. 6 I did ask for in vitro 7 studies that they could find, ex 8 vivo studies, and I also did my 9 own literature search. Yes. 10 BY MR. HEGARTY: 11 Q. Were you -- did you 12 understand that -- or do you understand 13 that you've been provided with all the 14 produced documents that concern biologic 15 plausibility? 16 MS. O'DELL: Object to form. 17 THE WITNESS: I have no 18 knowledge of whether I received 19 all documents. 20 BY MR. HEGARTY: 21 Q. With regard to the produced 22 documents, did you sign a protective 23 order before reviewing those documents? 24 A. Regarding these produced</p>

37 (Pages 142 to 145)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 146</p> <p>1 documents --</p> <p>2 Q. Yes.</p> <p>3 A. -- did I sign a protective</p> <p>4 order?</p> <p>5 Q. Yes.</p> <p>6 MS. O'DELL: Object to the</p> <p>7 form. It's a confidentiality</p> <p>8 order in this litigation. You may</p> <p>9 not be aware of it.</p> <p>10 MR. HEGARTY: Okay, well,</p> <p>11 confidentiality order.</p> <p>12 MS. O'DELL: Just so it's</p> <p>13 not unclear to the witness.</p> <p>14 BY MR. HEGARTY:</p> <p>15 Q. Did you sign a</p> <p>16 confidentiality order before reviewing</p> <p>17 the Bates-stamped documents?</p> <p>18 A. I signed a confidentiality</p> <p>19 agreement early on.</p> <p>20 Q. Do you rely on any tests for</p> <p>21 purposes of your opinions that are not</p> <p>22 reported in the medical literature?</p> <p>23 A. Again --</p> <p>24 MS. O'DELL: Object to the</p>	<p style="text-align: right;">Page 148</p> <p>1 experiments that I'm aware of that</p> <p>2 were done that I have knowledge</p> <p>3 of? No I have no knowledge of any</p> <p>4 laboratory testing or experimental</p> <p>5 testing in this field.</p> <p>6 BY MR. HEGARTY:</p> <p>7 Q. You did not do any testing</p> <p>8 yourself for purposes of developing your</p> <p>9 opinions in this case, correct?</p> <p>10 A. I did not do any laboratory</p> <p>11 tests.</p> <p>12 Q. All the opinions that are</p> <p>13 set out in your report about biologic</p> <p>14 plausibility between talc and ovarian</p> <p>15 cancer were formed after being contacted</p> <p>16 by counsel for plaintiffs about</p> <p>17 testifying as an expert in this case,</p> <p>18 correct?</p> <p>19 MS. O'DELL: Objection to</p> <p>20 form.</p> <p>21 THE WITNESS: After being</p> <p>22 contacted by the plaintiffs I did</p> <p>23 a literature search and followed</p> <p>24 the science.</p>
<p style="text-align: right;">Page 147</p> <p>1 form.</p> <p>2 THE WITNESS: Please</p> <p>3 describe "tests."</p> <p>4 BY MR. HEGARTY:</p> <p>5 Q. Well, did you rely on any</p> <p>6 testing or tests for purposes of your</p> <p>7 opinions that are not contained in the</p> <p>8 medical literature --</p> <p>9 MS. O'DELL: Objection to</p> <p>10 form.</p> <p>11 BY MR. HEGARTY:</p> <p>12 Q. -- that we wouldn't have</p> <p>13 access to but that you did?</p> <p>14 MS. O'DELL: Object to the</p> <p>15 form. Besides those produced in</p> <p>16 the litigation?</p> <p>17 MR. HEGARTY: Yeah, that</p> <p>18 goes without saying.</p> <p>19 MS. O'DELL: It doesn't go</p> <p>20 without saying. It's an unfair</p> <p>21 question.</p> <p>22 THE WITNESS: So if I</p> <p>23 understand your question to mean</p> <p>24 are there any laboratory</p>	<p style="text-align: right;">Page 149</p> <p>1 BY MR. HEGARTY:</p> <p>2 Q. That's not my question,</p> <p>3 Doctor.</p> <p>4 My question is, all the</p> <p>5 opinions set out in your report about</p> <p>6 biologic plausibility as they relate to</p> <p>7 talc and ovarian cancer were formed after</p> <p>8 being contacted by counsel for</p> <p>9 plaintiffs, correct?</p> <p>10 A. That is correct.</p> <p>11 Q. Can you cite for us any</p> <p>12 occasion where you've done the exact same</p> <p>13 thing that you have done here to prepare</p> <p>14 your report; that is, do an analysis of</p> <p>15 the literature on the biologic</p> <p>16 plausibility between the exposure to a</p> <p>17 substance and a disease?</p> <p>18 A. Nothing has been done</p> <p>19 exactly like it's been here, but for</p> <p>20 advisory boards that I've been on,</p> <p>21 including the National Toxicology Board,</p> <p>22 the Institute of Medicine, the Institute</p> <p>23 of Engineering for the National Academies</p> <p>24 of Science, we have -- we were requested</p>

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 150</p> <p>1 to do literature reviews on the question 2 that's in front of them and come up with 3 an opinion based upon our literature 4 reviews. 5 Q. Have you ever published an 6 article in the medical literature where 7 you've done the same thing that you've 8 done here, which is to review all the 9 literature on a substance and a disease 10 and offer opinions as to whether there's 11 biologic plausibility between that 12 substance and a disease? 13 A. I have written reviews that 14 are a culmination of all of the 15 literature that I reviewed on topics. 16 Never one on ovarian cancer and talc. 17 And to my knowledge, I have 18 not offered an opinion, but followed a 19 conclusion from the science. 20 Q. I think my question is a 21 little bit different. My question is, 22 have you published any article in the 23 literature where you have done 24 essentially the same thing that you have</p>	<p style="text-align: right;">Page 152</p> <p>1 the words "biological feasibility" or 2 "potential mechanisms" or "plausible" -- 3 I may have used the word "plausibility," 4 but I have used words that are similar to 5 those. 6 Q. Doctor, when did you first 7 become aware of an alleged link between 8 ovarian cancer and talc use? 9 MS. O'DELL: Object to the 10 form. 11 THE WITNESS: When did I 12 first become aware of the alleged 13 link between ovarian cancer and 14 talc use? From -- from the media. 15 I would say maybe a year prior to 16 being contacted by Ms. Emmel. 17 BY MR. HEGARTY: 18 Q. Can you cite for me any 19 scientific or medical group, entity or 20 organization who has concluded that 21 genital talc use causes ovarian cancer? 22 A. I -- really, my opinion is 23 based on biological plausibility. 24 Q. I understand that. But my</p>
<p style="text-align: right;">Page 151</p> <p>1 done here, which is review all the 2 literature on an exposure and a disease 3 and offer opinions as to whether there's 4 biologic plausibility between the 5 exposure and the disease? 6 A. Most of the papers that I 7 publish will offer a potential, whether a 8 speculative potential or one that is 9 defined within other published literature 10 as a potential mechanism of action or as 11 potential plausible outcome. 12 So for any published paper 13 from the research that I've done or that 14 people do, we explain an observation that 15 has been found in our laboratory from 16 testing, as you call it. And we will 17 explain the observation in terms of 18 biological plausibility, if that's what 19 you're referring to. 20 Q. Well, have you ever used the 21 phrase "biologic plausibility" in any 22 published article? 23 A. I cannot cite them for you, 24 but I -- I am confident that I have used</p>	<p style="text-align: right;">Page 153</p> <p>1 question is simply from your knowledge, 2 here today, can you cite for me any 3 scientific or medical group, entity or 4 organization who has concluded that 5 genital talc use causes ovarian cancer? 6 MS. O'DELL: Object to the 7 form. 8 THE WITNESS: Well, 9 concluded is -- is a word for 10 discussion. 11 IARC in the 1993 report from 12 inhalation toxicology and 13 inhalation of talc did show that 14 there was tumor induction in 15 female rats in the lungs and that 16 there was adrenal gland tumors 17 that were formed. 18 BY MR. HEGARTY: 19 Q. Well, IARC has never 20 concluded that the use of talc in the 21 genital area causes ovarian cancer, 22 correct? 23 A. You asked me whether there 24 was any body of literature or any</p>

39 (Pages 150 to 153)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 154</p> <p>1 advisory boards or any institution which 2 has concluded that there is a causal 3 relationship. And I've cited to you a 4 study -- 5 Q. That's not my question. My 6 question was can you cite for me any 7 scientific or medical group, entity or 8 organization who has concluded that 9 genital talc use causes ovarian cancer. 10 MS. O'DELL: Object to the 11 form. 12 THE WITNESS: I have -- I 13 have given you information on a 14 study done at the national 15 toxicology program. 16 BY MR. HEGARTY: 17 Q. Is that the extent of your 18 answer? 19 A. There are -- to my 20 knowledge, that's the best study that I 21 can cite to you. 22 Q. That's a study, correct? 23 A. That was a study, and they 24 are also a body that makes conclusions.</p>	<p style="text-align: right;">Page 156</p> <p>1 BY MR. HEGARTY: 2 Q. II-B is possibly 3 carcinogenic, correct? 4 A. To humans. 5 Q. I'm sorry? 6 A. To humans. Possibly 7 carcinogenic to humans. That doesn't 8 exclude the fact that there is animal 9 data supporting that conclusion. If 10 there were no animal data it -- it would 11 not even be considered a II-B. So 12 there -- there's evidence that the IARC 13 evaluated and came up with a II-B 14 classification. 15 Q. Is it your opinion that the 16 biologic plausibility of talc products 17 causing ovarian cancer has been generally 18 accepted in the medical community? 19 A. I think it depends on the 20 medical community. 21 Q. Well, aside from any medical 22 community that has accepted that there is 23 biologic plausibility between the use of 24 talc products in -- in ovarian cancer.</p>
<p style="text-align: right;">Page 155</p> <p>1 Q. That study did not involve 2 any commentary on ovarian cancer, 3 correct? 4 A. The study did not involve 5 commentary on that. 6 Q. Can you name any regulatory 7 body who has stated that talc use is a 8 cause of ovarian cancer? 9 A. Not as I sit here right now. 10 But again, making conclusions on 11 causation was not my question, is not 12 my -- is not within my purview. 13 And there are different 14 levels of cancer conclusion. For 15 instance, IARC has several 16 classifications. And -- as you know, I, 17 II-A, II-B, et cetera. 18 Q. And what is IARC's 19 classification of talc use in the genital 20 area? 21 MS. O'DELL: Object to the 22 form. 23 THE WITNESS: To my 24 knowledge, I think it's a II-B.</p>	<p style="text-align: right;">Page 157</p> <p>1 Let me -- let me restate that. 2 Can you cite for me any 3 medical community that has accepted that 4 there is biologic plausibility of talc 5 products causing ovarian cancer? 6 A. I'm not knowledgeable at -- 7 about all the medical communities and 8 what disciplines they are in. 9 Q. Well, can you cite for me 10 any medical or scientific community that 11 has accepted that there is biologic 12 plausibility of talcum powder products 13 causing ovarian cancer? 14 A. I have no knowledge of that. 15 That doesn't mean it's not out there. It 16 means that I have no knowledge of that. 17 Q. You have no knowledge -- 18 you -- so you cannot testify that the 19 medical or scientific communities have 20 accepted that there is biologic 21 plausibility of talcum powder products 22 causing ovarian cancer? 23 MS. O'DELL: Object to the 24 form.</p>

40 (Pages 154 to 157)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 158</p> <p>1 THE WITNESS: What I'm 2 saying is I have no knowledge of 3 the documents they have put out 4 with a conclusion as a white paper 5 or any other published literature 6 that has made that conclusion. 7 BY MR. HEGARTY: 8 Q. What does -- sorry. 9 A. Or has not made that 10 conclusion. 11 Q. What does general acceptance 12 mean to you? 13 A. General acceptance -- for 14 example, benzene, it causes leukemia and 15 other blood cancers. That is a general 16 acceptance by the medical community which 17 we all adhere to, abide by, based upon 18 the excessive amount of literature that 19 is out there showing -- proving and 20 addressing Hill's criteria and coming up 21 with the fact that it is a -- it is a 22 carcinogen for blood cancers. 23 That is general knowledge. 24 General knowledge is something saying</p>	<p style="text-align: right;">Page 160</p> <p>1 Thank you. 2 BY MR. HEGARTY: 3 Q. You don't -- you don't know 4 what a cosmetic is? 5 A. I'm asking you what your 6 definition is. 7 Q. Well, I -- what is your 8 definition? 9 A. A definition of a cosmetic 10 is -- since I'm not in the cosmetic 11 field -- a cosmetic is something that is 12 used for hygiene or aesthetics and used 13 dermally. 14 Q. Have you ever written any 15 scientific article about a cosmetic under 16 your definition? 17 A. Not to my knowledge, but I 18 would have to look at all of my papers 19 again, if you'd like me to do that. 20 Q. Can you cite for me any 21 publication of yours where you comment on 22 asbestos? 23 A. I would have to look at my 24 references. I go back from 1982.</p>
<p style="text-align: right;">Page 159</p> <p>1 that nickel can be a carcinogen, nickel 2 is a carcinogen and is classified by IARC 3 as a I. In that case, the general 4 population is aware of that. 5 Q. Before being hired by the 6 plaintiffs' lawyers in this case, you had 7 never written anything about talc, 8 correct? 9 A. That's correct. 10 Q. Or commented on talc in any 11 setting, correct? 12 A. Other than teaching? 13 Q. Other than the teaching 14 reference you cited earlier? 15 A. That's correct. 16 Q. Before being hired by 17 plaintiffs' counsel you had never written 18 anything about any cosmetic, correct? 19 MS. O'DELL: Object to the 20 form. 21 Could you please -- it's 22 vague in terms of cosmetic. Do 23 you have a definition in mind? 24 THE WITNESS: Exactly.</p>	<p style="text-align: right;">Page 161</p> <p>1 Q. Sitting here today, can you 2 cite for us, without looking at any 3 references, any article you've ever 4 written about asbestos? 5 MS. O'DELL: Doctor, if you 6 need to look at your CV, you're 7 welcome to do that. 8 BY MR. HEGARTY: 9 Q. Well, my question didn't ask 10 about the CV. I said just simply sitting 11 here today, just based on your memory -- 12 A. Okay. 13 Q. -- are you able to recall 14 any article you've ever written about 15 asbestos. 16 MS. O'DELL: If you would 17 like to look at your CV, it's in 18 front of you. You are welcome 19 to -- to do that. 20 MR. HEGARTY: I'll withdraw 21 the question. 22 BY MR. HEGARTY: 23 Q. Doctor, have you ever 24 written any article about a fragrance?</p>

41 (Pages 158 to 161)

Judith Zelikoff, Ph.D.

Page 162	Page 164
<p>1 A. I would also like to look at 2 my CV. 3 Q. Without looking at your CV, 4 you can't say one way or the other? 5 A. I can't say conclusively. 6 My CV and my publications go back to 7 1982. It was quite a while ago. 8 Q. And you can't say 9 conclusively whether you've written an 10 article about asbestos? 11 A. I would rather look at my -- 12 my publications. 13 Q. Okay. Have you ever 14 written -- 15 A. Would you like me to do 16 that, sir? 17 Q. No. I'm not asking you to 18 do that right now. 19 A. Thank you. 20 Q. Sitting here today without 21 looking at your CV, can you cite for me 22 any article you've ever written about 23 asbestos? 24 MS. O'DELL: Objection to</p>	<p>1 as scientists, involved as co-authors, 2 oftentimes. And I do not recall back to 3 1982. 4 Q. Well, for purposes of your 5 report, you do not cite to any of your 6 own work, correct? 7 A. That is correct. 8 Q. You've never written 9 anything about talc and ovarian cancer, 10 correct? 11 A. I think I asked and answered 12 that. I think I answered that. But I 13 can repeat it. 14 Q. No, you did not. I did not 15 ask you that question, ma'am. 16 A. So can -- 17 Q. I asked you had you ever 18 written anything about talc. My question 19 that I just asked you is have you ever 20 written anything about talc and ovarian 21 cancer? 22 A. To my knowledge, as I sit 23 here now without looking at my 24 publications, no.</p>
Page 163	Page 165
<p>1 form. 2 THE WITNESS: To my 3 knowledge at this particular 4 moment, I cannot cite for you an 5 article that I specifically wrote 6 on asbestos. Whether or not I was 7 a co-author on one, I cannot 8 recall. 9 BY MR. HEGARTY: 10 Q. Would that be the same 11 answer as to a fragrance? 12 A. I -- I would really rather 13 look at my CV and my publications and 14 book chapters. 15 Q. Before being contacted by 16 counsel for plaintiffs in this case, you 17 had never developed or offered any 18 opinions about talc, correct? 19 A. That is correct. 20 Q. You've never written 21 anything about ovarian cancer, correct? 22 A. Again, just to put on the 23 record, I would really like to look at my 24 CV and look at my publications. We are,</p>	<p>1 Q. Prior to being contacted by 2 plaintiff's counsel have you ever 3 reviewed the body of literature on the 4 etiologies or biology related to ovarian 5 cancer? 6 A. Not prior to being 7 contacted, no. 8 Q. You've never published any 9 opinions about the causes of ovarian 10 cancer, correct? 11 A. To my knowledge, sitting 12 here, no. 13 Q. You never published any 14 opinions about the risk factors for 15 ovarian cancer, correct? 16 A. I really -- I'm not sure. I 17 know that I have given that information, 18 not an opinion, but have given that 19 information in teaching courses. 20 Q. Have you ever taught any 21 courses on asbestos? 22 A. Asbestos has been included. 23 I give lectures in my organ system 24 toxicology course as well as in my</p>

Judith Zelikoff, Ph.D.

Page 166	Page 168
<p>1 toxicology course for biology masters. I 2 give courses in air pollutants and 3 cancer-causing agents and the toxicology 4 of -- of airborne. 5 Q. Have you ever taught in your 6 courses any discussion about fragrances 7 and toxicity? 8 A. It may have come up as a 9 minor point. We talk about pesticides, 10 we talk about air pollutants. We talk 11 about metals. Fragrances, we talked 12 about limonene, eugenol, menthol and 13 other fragrances in that realm in the 14 discussion of electronic cigarettes and 15 the aerosols produced by them. 16 Q. And you provided to us all 17 the lectures or the content of lectures 18 that you've given where you mentioned 19 talc, correct? 20 A. I was not asked to -- 21 MS. O'DELL: Object to the 22 form. 23 THE WITNESS: I was not 24 asked to provide them. But please</p>	<p>1 reproductive docs who do focus on this, 2 yes. 3 Q. And that has not been an 4 area of your focus, correct? 5 A. Not -- not in past. Has not 6 been a primary focus. 7 Q. You have provided for us 8 your CV, correct? 9 A. That is correct. 10 Q. That's included as part of 11 Exhibit B to your expert report, correct? 12 MS. O'DELL: Objection to 13 form. 14 THE WITNESS: I think it's 15 stated here as Exhibit A. 16 BY MR. HEGARTY: 17 Q. It's Exhibit A to your 18 expert report. Is that a current CV of 19 yours? 20 A. It was updated in 21 August 2018. So it is not completely 22 updated as of January 2019. 23 Q. Did you bring an updated CV 24 to your deposition?</p>
Page 167	Page 169
<p>1 let me explain my teaching style. 2 My teaching style is such 3 that I use few PowerPoints as 4 queues. And much of my teaching 5 is done verbally, one-on-one. And 6 they're not recorded. 7 So there is really not that 8 much -- there is nothing to supply 9 to counsel. 10 BY MR. HEGARTY: 11 Q. Well, other than the 12 reference that you provided to us earlier 13 about talc and ovarian cancer, you have 14 not otherwise lectured regarding this 15 subject, correct? 16 A. That is correct. 17 Q. There are toxicologists who 18 focus on issues dealing with reproductive 19 medicine or reproductive sciences such as 20 ovarian cancer and uterine cancer, 21 correct? 22 A. There are scientists whose 23 major focus is on talc and ovarian cancer 24 and there are OB/GYNs as well as</p>	<p>1 A. I did not. 2 Q. As you stated -- 3 A. I'm sorry. I can provide 4 that. 5 Q. Does your CV anywhere list 6 any professional experience on ovarian 7 cancer? 8 A. Excuse me. Not to my 9 knowledge, in briefly reviewing my CV, 10 and not to my knowledge as I sit here. 11 Q. Does your CV list any 12 professional experience regarding 13 asbestos? 14 A. Specifically, asbestos as I 15 review, no. No, sir. 16 Q. Does your CV list any 17 professional experience regarding 18 fragrances? 19 A. Not to my knowledge, no, 20 sir. But you're asking me only what's in 21 my CV. 22 I have -- I have worked -- I 23 have looked at or heard about from other 24 advisory boards things to do with</p>

43 (Pages 166 to 169)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 170</p> <p>1 flavorants, as I said with electronic 2 cigarettes, hookah and smokeless tobacco. 3 So I am familiar with other -- which may 4 not be listed here in detail, which is 5 not listed here in detail, on flavorants 6 and some of those same flavors used in 7 electronic cigarettes are also, I found, 8 listed here. 9 Q. Has any entity or agency 10 consulted you with regard to diseases of 11 the female reproductive tract? 12 MS. O'DELL: Object to the 13 form. 14 THE WITNESS: Not to my 15 knowledge. 16 BY MR. HEGARTY: 17 Q. And no one has ever asked 18 you to look into any of the issues set 19 out in your report besides plaintiffs' 20 counsel, correct? 21 A. I'm sorry. Again? 22 Q. No one has asked you to look 23 at the issues set out in your expert 24 report in this case other than</p>	<p style="text-align: right;">Page 172</p> <p>1 or scientist who believes that there is 2 biologic plausibility between use of 3 talcum powder and ovarian cancer? 4 MS. O'DELL: Object to form. 5 THE WITNESS: I have not 6 spoken to any doctors in that 7 regard. 8 BY MR. HEGARTY: 9 Q. How about any scientists? 10 A. I have not spoke to any 11 scientists in that regard. 12 Q. Have you -- 13 A. My opinion was specifically 14 based upon the scientific literature that 15 I had access to. 16 Q. Have you ever had your 17 deposition taken before? 18 A. I have. Yes, sir. 19 Q. How many times? 20 A. One that I can recall. Two 21 that I'm now recalling. One that was 22 in -- for Dow Chemical on breast implants 23 and relationship with autoimmune disease 24 and one from a personal attorney who</p>
<p style="text-align: right;">Page 171</p> <p>1 plaintiffs' counsel, correct? 2 A. This specific ovarian cancer 3 and asbestos, that is correct. 4 Q. You have not submitted your 5 expert report in this case for peer 6 review, correct? 7 A. The only ones who have seen 8 my report have been the plaintiff 9 attorneys, to my knowledge. 10 If that was given out to 11 others at that point, I do not -- I do 12 not have knowledge of that. 13 Q. You certainly have not 14 submitted your report for peer review, 15 correct? 16 A. I have not submitted my 17 report for peer review. 18 Q. Have you spoken to any 19 physicians who treat ovarian cancer 20 regarding talc and ovarian cancer? 21 A. I have not. 22 Q. Other than experts 23 identified by plaintiffs in this 24 litigation, can you identify any doctor</p>	<p style="text-align: right;">Page 173</p> <p>1 was -- who had a client who was exposed 2 to wood burning from a wood stove, an 3 outdoor wood stove. 4 Q. As to the latter case, do 5 you know where that case was pending or 6 was filed? 7 A. I was deposed in New York 8 City. 9 Q. Do you know the name of the 10 case? 11 A. I'm afraid not, sir. 12 Q. How long ago was it? 13 A. 15 years. 14 Q. You were testifying on 15 behalf of the plaintiff in that case? 16 MS. O'DELL: Object to form. 17 THE WITNESS: I was not 18 testifying. I was deposed for 19 the -- sorry, for the person who 20 was making the claim that they had 21 increased asthma as a result of 22 neighbors use of a wood boiler. 23 BY MR. HEGARTY: 24 Q. In the Dow Chemical breast</p>

44 (Pages 170 to 173)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 174</p> <p>1 implant case, were you testifying as an 2 expert witness? 3 A. I was. 4 Q. On behalf of the plaintiffs? 5 A. If you're talking about on 6 the part of Dow, yes. 7 Q. Well, on the part of Dow who 8 was the defendant or the plaintiffs? 9 A. Dow was the defendant. I'm 10 sorry. 11 Q. Were you testifying on 12 behalf of Dow? 13 A. I was. 14 Q. Any other cases you've been 15 deposed in? 16 A. Not that I can recall. 17 Q. Have you been identified in 18 any other cases as an expert witness 19 besides this one to your knowledge? 20 A. I have done literature 21 reviews for a number of attorneys but 22 have not been deposed. 23 Q. My question is specific to 24 whether you -- whether you are aware that</p>	<p style="text-align: right;">Page 176</p> <p>1 cases -- are there any articles on which 2 you rely for purposes of your opinions -- 3 strike that. Let me ask it a different 4 way. 5 How many articles have you 6 published since August of 2018? 7 A. I'm going to look at the 8 last publication. 9 I have one that was accepted 10 in press on the Garfield community and 11 looking at chromium exposure and doing 12 community engagement for the community 13 and looking at blood level of 14 measurements -- or toenail measurements, 15 excuse me, toenail measurement of 16 chromium, as they're impacting 17 communities environmentally. 18 Also two publications have 19 come out with the lead author, my being a 20 corresponding author with the lead author 21 being from the University of Rochester in 22 the area of inhaled particulate matter 23 and -- during pregnancy and effects on 24 the -- on the offspring and on the fetus.</p>
<p style="text-align: right;">Page 175</p> <p>1 you've been designated, identified, in 2 the case as a testifying expert besides 3 this case. Are you aware of any such 4 cases? 5 A. Not to my knowledge. 6 Q. I know I referred earlier to 7 your CV. But I'm marking it as 8 Exhibit 22. You can look at that one or 9 Exhibit 22. 10 (Document marked for 11 identification as Exhibit 12 Zelikoff-22.) 13 BY MR. HEGARTY: 14 Q. Are there any publications 15 of yours that relate to any of the issues 16 in this case that are not included in 17 your CV? 18 MS. O'DELL: Object to form. 19 THE WITNESS: Let's talk 20 about the issues of the case. Can 21 you define them a little better? 22 BY MR. HEGARTY: 23 Q. Yeah, let me ask you a 24 different question. Are there any</p>	<p style="text-align: right;">Page 177</p> <p>1 Q. You are not a medical 2 doctor, correct? 3 A. I am not a medical doctor, 4 although I did go to medical school for 5 my Ph.D. training. 6 Q. You can't treat patients, 7 correct? 8 A. I do not treat patients. 9 Q. You are not an oncologist, 10 correct? 11 A. I am not an oncologist. 12 Q. You have no training in 13 oncology, correct? 14 A. I have no training in 15 oncology. I have training in pathology, 16 which is what I got my Ph.D. degree in at 17 a medical school. 18 Q. You have never diagnosed or 19 treated a disease in a patient, including 20 cancer, correct? 21 A. That is correct. 22 Q. You have no expertise in 23 treating patients with ovarian cancer, 24 correct?</p>

45 (Pages 174 to 177)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 178</p> <p>1 A. I have no expertise in that, 2 no. 3 Q. You have no expertise in 4 diagnosing ovarian cancer, correct? 5 A. I do not. 6 Q. You are not an expert on 7 asbestos, correct? 8 A. I have not been classified 9 as an expert in asbestos, although as I 10 said, I do work in air pollution and if 11 asbestos is in the confines -- taken in 12 the confines of air pollution, I could 13 speak to that. But I have not been 14 designated as an expert. 15 Q. What's the difference 16 between amphibole and serpentine forms of 17 asbestos? 18 MS. O'DELL: Object to form. 19 BY MR. HEGARTY: 20 Q. You can answer. 21 A. It depends on whether it's 22 asbestiform or non-asbestiform. 23 Q. Okay. Asbestiform. What's 24 the difference between amphibole and</p>	<p style="text-align: right;">Page 180</p> <p>1 those forms can exist both in 2 crystalline form or in a 3 non-asbestiform. 4 So they are both -- both 5 concluded to be asbestos. 6 BY MR. HEGARTY: 7 Q. Well, are there any 8 differences between -- 9 A. By the EPA. 10 Q. Are there any differences 11 between amphibole and serpentine forms of 12 asbestos? 13 MS. O'DELL: Object to form. 14 THE WITNESS: Well, they are 15 different -- they are different 16 minerals. But they are both 17 classified as asbestos. 18 BY MR. HEGARTY: 19 Q. Any other differences? 20 A. It -- both of which contain 21 carcinogenic -- classified I, as IARC. 22 Both have within them carcinogenic 23 asbestos. To my knowledge, that is -- 24 that is all I --</p>
<p style="text-align: right;">Page 179</p> <p>1 serpentine forms? 2 A. Well -- 3 MS. O'DELL: Object to the 4 form. 5 THE WITNESS: Amphibole 6 lists serpentine which is 7 associated with chrysotile. They 8 all have an aspect ratio of, 9 depending on who you are looking 10 at, whether it's three to one or 11 five to one. Johnson & Johnson 12 includes it as five to one, which 13 is length-to-width ratio. They 14 both have the same length-to-width 15 ratio. 16 If they're asbestiform, then 17 they are fibers that are made up 18 of fibrils. They both have that. 19 And they go in a 20 longitudinal manner and they are 21 in one direction. 22 Amphibole includes within it 23 the crocidolite, and as well as 24 tremolite, amosite, and some of</p>	<p style="text-align: right;">Page 181</p> <p>1 Q. What was the most 2 commercially used asbestos? 3 A. Well, it -- it depends on 4 the time. But for commercial use, in 5 paints and housing and insulation, it was 6 either chrysotile was used commercially 7 and crocidolite was also used 8 commercially. 9 Q. Okay. How did the supposed 10 toxicities various -- vary across the 11 various forms of asbestos? 12 MS. O'DELL: Object to the 13 form. 14 THE WITNESS: When you say 15 toxicity what do you mean? 16 BY MR. HEGARTY: 17 Q. The -- the toxicities vary 18 across the various forms. 19 MS. O'DELL: Object to the 20 form. 21 THE WITNESS: Mm-hmm. It 22 depends on the chemical 23 composition. It depends on the 24 surface material. It depends on</p>

46 (Pages 178 to 181)

Judith Zelikoff, Ph.D.

Page 182	Page 184
<p>1 the amount of iron. It depends on 2 the size of the fiber or the 3 crystal. 4 And so depending upon those 5 factors you are going to have 6 differences in toxicity. 7 BY MR. HEGARTY: 8 Q. Well, how does -- does 9 tremolite asbestos compare to chrysotile 10 asbestos in terms of toxicity? 11 A. I don't really -- I don't 12 think I can answer that in terms of 13 ranking it. I can tell you that 14 chrysotile is a well-known carcinogen, 15 well-established carcinogen by the 16 agencies. That tremolite is an amphibole 17 and it can exist in both forms, either 18 asbestiform in the long longitudinal 19 fibriles, or it can exist as a mineral 20 that has dimensions in all different 21 directions. 22 So tremolite -- it's 23 difficult to rank, but chrysotile appears 24 to be -- when you say more toxic, you</p>	<p>1 Q. You are not an expert in 2 fragrances, correct? 3 MS. O'DELL: Object to form. 4 THE WITNESS: I have -- I 5 have not been listed as an expert 6 in fragrances. 7 BY MR. HEGARTY: 8 Q. Would you consider yourself 9 an expert in fragrances? 10 A. I am a toxicologist so I can 11 review chemicals and make a decision or 12 assess their toxicity based on outcomes. 13 Q. Before being contacted by 14 Ms. Emmel in this case, would you have 15 considered yourself an expert in 16 fragrances? 17 MS. O'DELL: Objection. 18 THE WITNESS: Expert in 19 fragrances. It is not something I 20 studied in my own laboratory. 21 However, a toxicologist 22 should be able to go into the 23 literature and have a greater 24 knowledge than most people in</p>
Page 183	Page 185
<p>1 have to understand what is the outcome 2 that you're looking at. They can both 3 cause toxicity. I don't know what you 4 exactly mean by more toxic. 5 Do you mean at a given 6 dose -- what -- what do you mean by -- 7 Q. I didn't -- I didn't use the 8 word "more toxic." I just -- I asked you 9 how does tremolite asbestos compare to 10 chrysotile asbestos in terms of toxicity. 11 A. I think I -- yeah, that's a 12 very difficult question to a 13 toxicologist. Because when you compare 14 toxicity across -- across lines, you have 15 to somehow rank them based on a 16 particular outcome. 17 So toxicity could be does it 18 produce more lactate dehydrogenase when 19 put in a macrophages culture of -- of 20 pulmonary cells, or does it produce more 21 apoptosis. You can't just say toxicity 22 in my opinion. You have to give me an 23 outcome. Does this produce more toxicity 24 in this area.</p>	<p>1 looking up different chemicals. 2 BY MR. HEGARTY: 3 Q. You are not an expert on 4 talc, correct? 5 MS. O'DELL: Object to the 6 form. 7 THE WITNESS: I have done 8 much work in dust, including the 9 World Trade Center dust. I've 10 done work on diesel exhaust and 11 other things that are powders. So 12 particularly talc, I don't think I 13 am classified as a talc expert. 14 But as I said I've done much 15 work in other dusts, other 16 aerosols, vapors, gases, 17 particles, and I am an expert in 18 particles. 19 BY MR. HEGARTY: 20 Q. You are not a geneticist, 21 correct? 22 A. I'm -- if a geneticist is 23 someone who has been trained specifically 24 in genetics, I have not been trained in</p>

47 (Pages 182 to 185)

Judith Zelikoff, Ph.D.

Page 186	Page 188
<p>1 genetics. I have had courses in 2 molecular toxicology and I do teach some 3 molecular toxicology. 4 Q. You are not a mineralogist, 5 correct? 6 A. I am not a mineralogist. 7 Q. You are not an expert on 8 testing for the presence of asbestos, 9 correct? 10 A. I am not a chemist. 11 Q. You are not an expert on 12 testing the air for asbestos, correct? 13 A. We collect -- I collect 14 particles in the air. I do air 15 measurements. That is the basis of my 16 research. 17 When it comes to asbestos, 18 we will send those -- those filters out 19 to be analyzed by an expert laboratory, 20 and then we will help interpret the data. 21 Q. You are not an industrial 22 hygienist, correct? 23 A. I work with industrial 24 hygienists, but I do not have a degree in</p>	<p>1 components by percentage of Johnson's 2 Baby Powder? 3 MS. O'DELL: Object to the 4 form. Vague. 5 THE WITNESS: I cannot -- 6 although I have looked at it, I 7 cannot tell you that off the top 8 of my head. I would have to 9 look -- refresh my memory by 10 looking at an exhibit or a 11 document. 12 BY MR. HEGARTY: 13 Q. What were the current 14 components of Johnson's Baby Powder by 15 percentage from the 19 -- 1900s through 16 the present? 17 A. I cannot -- 18 MS. O'DELL: Excuse me. 19 Excuse me. Object to the form. 20 Vague. 21 THE WITNESS: I cannot give 22 you percentages off the top of my 23 head. If you allow me to look at 24 a document I -- I could tell you.</p>
Page 187	Page 189
<p>1 it. 2 Q. You are not an expert on 3 Johnson's Baby Powder, correct? 4 MS. O'DELL: Objection to 5 form. 6 THE WITNESS: I am not an 7 expert on -- I -- could you 8 rephrase that? 9 BY MR. HEGARTY: 10 Q. I don't think I can. 11 A. I don't know what you mean 12 by expert. I mean I need to have -- I 13 think I need to have some criteria that 14 would make me an expert. If you are 15 talking about the number of publications 16 I have or whether I've testified. 17 I -- the word "expert" 18 throws me off a bit. 19 Q. Well, where is the talc for 20 J&J's Baby Powder been mined over the 21 years? 22 A. In Vermont, in Italy, and 23 also in Korea. 24 Q. What are the current</p>	<p>1 BY MR. HEGARTY: 2 Q. Are the opinions in your 3 report specific to particular 4 formulations of talcum powder consumer 5 products? 6 MS. O'DELL: Object to the 7 form. 8 THE WITNESS: Are the 9 opinions in your report specific 10 to particular formulations. 11 My opinion is based on 12 biological plausibility based on 13 studies that have used talcum 14 powder or talc or fibrous talc or 15 nonfibrous talc. 16 BY MR. HEGARTY: 17 Q. Did you analyze specifically 18 the biologic plausibility of the 19 components of Johnson's Baby Powder for 20 purposes of your opinions? 21 MS. O'DELL: Object to the 22 form. 23 THE WITNESS: I looked at 24 the individual components that I</p>

48 (Pages 186 to 189)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 190</p> <p>1 was aware of. And looked at their 2 ability to cause inflammation, 3 let's say, or their carcinogenic 4 potential. 5 BY MR. HEGARTY: 6 Q. But did you look 7 specifically -- did you specifically 8 analyze biologic plausibility specific to 9 J&J's -- strike that. 10 Did you analyze biological 11 plausibility specific to Johnson's Baby 12 Powder in your report? 13 A. If the literature was there, 14 there was some -- I'm sorry, I can't 15 remember the author now. But there were 16 authors and investigators that did use 17 Johnson's Baby Powder in their studies, 18 and if they used those studies, and I 19 used that for -- to provide biological 20 plausibility, then yes. 21 Q. What studies were done 22 specific to Johnson's Baby Powder? 23 MS. O'DELL: Object to the 24 form.</p>	<p style="text-align: right;">Page 192</p> <p>1 in the question that I was asked to 2 comment on, but from cursory knowledge 3 there are different cell types. 4 Q. What's the difference 5 between a low grade and high grade tumor? 6 A. The induction of 7 invasiveness and proliferation capacity. 8 Q. What is thought to be the 9 primary origin of high-grade serous 10 ovarian cancer? 11 MS. O'DELL: Object to the 12 form. 13 THE WITNESS: Primary 14 origin. I'm not sure what that 15 means. 16 BY MR. HEGARTY: 17 Q. Well, what is -- what is 18 typically the primary location or origin 19 of high-grade serous? 20 A. Do you mean in the ovary? 21 Q. I don't think I can ask it 22 any different way. 23 A. Well, I don't quite 24 understand your question.</p>
<p style="text-align: right;">Page 191</p> <p>1 THE WITNESS: Of course all 2 of the product documents. 3 Sorry, I'm having difficulty 4 recalling that -- the particular 5 name. It's not a memory test. 6 I'm sorry. 7 BY MR. HEGARTY: 8 Q. With regard to ovarian 9 cancer, what are the subtypes of the 10 disease? 11 A. Well, as -- as -- 12 MS. O'DELL: Object to the 13 form. 14 THE WITNESS: -- was pointed 15 out, I'm not an OB/GYN. I can 16 tell you just from cursory 17 knowledge that there are serous, 18 high grade, low grade serous, 19 endometrioid, mucous cell, 20 epithelioid. 21 BY MR. HEGARTY: 22 Q. What are the differences in 23 subtypes? 24 A. Again, this is not in my --</p>	<p style="text-align: right;">Page 193</p> <p>1 Q. What is the primary origin 2 of clear cell carcinoma? 3 MS. O'DELL: Object to the 4 form. 5 THE WITNESS: If you're 6 asking me the types, I don't 7 recall the type of cell for clear 8 cell carcinoma. Again, I'm not an 9 OB/GYN, and I'm not a histologist. 10 BY MR. HEGARTY: 11 Q. For purposes of your report, 12 did you analyze biologic plausibility for 13 each subtype of ovarian cancer? 14 A. No, sir. 15 Q. Is it your opinion that the 16 etiology of each of the subtypes of 17 ovarian cancer is the same? 18 A. There are many 19 commonalities. 20 As I said, from my cursory 21 knowledge and my background, early 22 background in 1980, of being a -- 23 pathology when this was not even 24 considered or thought about, there is</p>

49 (Pages 190 to 193)

Judith Zelikoff, Ph.D.

Page 194	Page 196
<p>1 etiologies -- I'm sorry, I had to refresh 2 my memory of your question. 3 There are different 4 etiologies. Many -- and many of the 5 same, and so I think that -- if I may 6 gather my thoughts and refresh your 7 question. 8 So as I said, in terms of my 9 opinion that the etiology in each of the 10 subtypes of ovarian cancer is the same, 11 there are many commonalities in -- 12 etiology being the underlying reason. 13 There are many commonalities for the same 14 cancers, including things like cancer 15 stem cells in ovarian cancer, which are 16 now being identified in the literature as 17 a possibility for recurrence of ovarian 18 cancer. 19 So, yes, there are definite 20 commonalities in terms of the induction 21 of ovarian types of cancer. 22 Q. Well, my question was, is it 23 your opinion that the etiologies of each 24 subtype are the same?</p>	<p>1 Remove your microphones. The time 2 is 12:22 p m. Off the record. 3 (Lunch break.) 4 THE VIDEOGRAPHER: We are 5 back on the record. The time is 6 1:17 p.m. 7 BY MR. HEGARTY: 8 Q. Doctor, we're back on the 9 record. I want to go back to something 10 we talked about at the beginning, that 11 is, the initial call that you had from 12 Ms. Emmel. 13 You mentioned that you 14 reviewed materials between the time of 15 the call and the time that you agreed to 16 serve as an expert witness. Do you 17 recall saying that? 18 A. I do recall. 19 Q. What materials did you 20 review? 21 A. Just random, whatever I got 22 from the -- that came out using keywords 23 of talc, talcum powder, ovarian cancer. 24 Those were my initial keywords.</p>
Page 195	Page 197
<p>1 MS. O'DELL: Objection to 2 form. 3 THE WITNESS: I have -- 4 MS. O'DELL: Asked and 5 answered. 6 THE WITNESS: I have no 7 opinion on that. 8 BY MR. HEGARTY: 9 Q. Is it your opinion -- 10 MS. O'DELL: Excuse me. 11 THE WITNESS: Other than 12 what I -- 13 MS. O'DELL: Sorry. 14 THE WITNESS: I'm sorry. 15 MS. O'DELL: You may finish. 16 I didn't mean to cut you off. 17 THE WITNESS: Other than 18 what I've just given. 19 MS. O'DELL: So, Mark, we've 20 been going about an hour and ten 21 minutes, I think. 22 MR. HEGARTY: Okay. Take a 23 break. 24 THE VIDEOGRAPHER: Stand by.</p>	<p>1 Q. Do you recall, sitting here 2 today, any particular articles, whether 3 by author name or by name of that initial 4 search that you did before agreeing to 5 serve as an expert? 6 A. I looked at Ghio, G-I -- 7 G-H-I-O. Did inhalation of talc and 8 airway cells in in vitro study. 9 I also looked at 10 Dr. De Boers and migration of carbon 11 black material. 12 I also looked at Dr. Venter 13 and Iturralde, who talked about 14 administered radiolabeled microspheres. 15 I read Dr. Weiner's -- 16 Weiner's -- Dr. Weiner's publication. I 17 read Dr. Epstein's letter. 18 Q. Is that something that you 19 found on your own? 20 A. Excuse me. It wasn't 21 Dr. Epstein's letter. I'm sorry. I 22 stand corrected. 23 I read the National 24 Toxicology Report, the NTP 1993.</p>

50 (Pages 194 to 197)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 198</p> <p>1 Q. Did you do a more expansive 2 literature search and literature review 3 after agreeing to serve as an expert 4 witness? 5 A. Of course. 6 Q. Did you form any opinions, 7 though, from that initial search that you 8 performed? 9 A. My opinion at that time was 10 that there was certainly -- I had a great 11 deal of interest in the topic, that there 12 was certainly enough information and 13 enough evidence to provide -- that was 14 provided by these publications that -- 15 certainly that particles of the size of 16 talc can be -- can be translocated, 17 migrated, and that -- at least from the 18 lung, and so that there was biological 19 plausibility for movement within the 20 body. 21 And I found it convincing 22 that I could -- that I could get involved 23 in this case and that I believe that 24 there was, at that point with only</p>	<p style="text-align: right;">Page 200</p> <p>1 known about the product is consistent 2 with a cause-and-effect relationship." 3 Do you see that where I'm 4 reading? 5 A. I see where you're reading. 6 Q. Where does that definition 7 of biological plausibility come from? 8 A. It is my professional 9 opinion. 10 Q. Is there still biological 11 plausibility if what is known about a 12 substance and a disease is consistent 13 with no cause-and-effect relationship? 14 MS. O'DELL: Object to the 15 form. 16 THE WITNESS: Biological 17 plausibility, to me, as stated 18 here -- and I will state it a 19 different way, is that there is 20 actually literature and 21 information, reliable, sound 22 science that could -- that 23 provides evidence that there is a 24 mechanism or mechanisms as well as</p>
<p style="text-align: right;">Page 199</p> <p>1 superficial literature searching, that 2 there was indeed room for an opinion. 3 And that opinion being that there 4 certainly was information provided that 5 could lead me to provide biological 6 plausibility in that regard. Otherwise, 7 I would not have taken the case. 8 What I would like to say is 9 that I would have done the same thing if 10 you had called me, sir, to answer the 11 question of what my beliefs are and where 12 the science is. 13 Q. If you look at Page 2 again 14 of your expert report. 15 A. Yes, sir. 16 Q. That's Exhibit 2. Again, 17 under the section mandate -- 18 A. Yes. 19 Q. -- and methodology. 20 A. I see it. 21 Q. You say at the end of the 22 second paragraph that, "Biological 23 plausibility does not mean proof of 24 mechanism, but rather whether what is</p>	<p style="text-align: right;">Page 201</p> <p>1 underlying information that could 2 prove the -- although it's not 3 necessary in Hill's criteria, that 4 could be used to prove a causal 5 relationship. 6 And in this case, that 7 talcum powder, in particular 8 Johnson & Johnson talcum powder, 9 can lead to ovarian cancer. 10 BY MR. HEGARTY: 11 Q. Well, do you agree that the 12 finding of biologic plausibility by 13 itself does not mean causation? 14 A. Biological plausibility is 15 used to supplement or to add on. It is 16 actually one of Hill's criteria. One 17 that he listed in his 1962 paper that is 18 not absolutely necessary but does provide 19 compelling evidence. And I do believe 20 that biological plausibility is extremely 21 important, in my personal opinion, in 22 causal relationship. And Hill agrees to 23 that as well. 24 Q. You agree, though, that the</p>

51 (Pages 198 to 201)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 202</p> <p>1 other Hill factors should be applied to 2 determine causality, other than -- in 3 addition to biological plausibility? 4 A. Well, I really can't say. 5 Again, I know -- I know of Hill's work, 6 and I know of his groundbreaking 7 publication. But again, I'm here to talk 8 about plausibility, not causation. 9 Q. At the bottom of Page 2 you 10 say as part of your analysis you 11 reviewed, "Depositions and numerous 12 documents, internal memorandum and 13 published and unpublished studies and 14 testing results that I have found in my 15 own searches of documents, documents 16 provided by attorneys, and documents that 17 I requested." That's carrying over to 18 Page 3. 19 Do you see that? 20 A. Toxicological studies. Are 21 we talking about toxicological studies 22 including in vivo and in vitro? 23 Q. No. I'm looking at the very 24 last sentence of the paragraph at the</p>	<p style="text-align: right;">Page 204</p> <p>1 publication of yours, depositions or 2 expert reports in a litigation? 3 A. No. However, there are 4 papers and regulatory -- regulatory 5 documents that are not considered 6 published, published. If you mean 7 peer-reviewed literature, that's one way 8 of publishing. But another way of 9 publishing is also documents that are in 10 a report. 11 And I have used reports in 12 my own publications, if they -- if they 13 are accessible to me. 14 Q. Have you ever in a published 15 scientific article of yours cited to an 16 expert report from a doctor in a 17 litigation? 18 A. I'm sorry. I have to look 19 down at your question. 20 Not that I recall. But 21 that's not to say that I would not. 22 If it was appropriate for 23 the paper that I was writing, I would 24 certainly use it.</p>
<p style="text-align: right;">Page 203</p> <p>1 bottom of Page 2, carrying over to the 2 top of Page 3? 3 A. In addition, I've reviewed 4 depositions and numerous documents 5 internal memorandum and published and 6 unpublished studies and testing results 7 that I have found in my own searches. 8 Q. Correct. In any scientific 9 analysis that you have done, have you 10 ever included as part of that analysis 11 documents provided by attorneys? 12 A. In my -- when I publish, I 13 look at all relevant information that I 14 have access to. It's about the science. 15 Q. Not my question. My 16 question is in any prior work that you 17 have done where you have published an 18 article, have you included in the review 19 for purposes of publishing that article, 20 documents provided by lawyers? 21 A. No, sir, not to my 22 knowledge. 23 Q. Have you ever included as 24 materials that you have reviewed for any</p>	<p style="text-align: right;">Page 205</p> <p>1 Q. Can you identify any 2 scientific group -- strike that. 3 Before I ask you about 4 causation, now I want to ask you about 5 biological plausibility. Can you cite 6 for me any scientific group, body, or 7 even paper that has concluded that there 8 is biological plausibility between 9 perineal talc use and ovarian cancer? 10 A. Mm-hmm-hmm. If you look at 11 -- I don't know what exhibit it is. But 12 it is the Health Canada report. And -- 13 Canadian U.S. EPA. And if you look at 14 Taher's paper, systemic review and 15 meta-analysis, in both of those -- okay. 16 So the environmental -- Health Canada and 17 Canadian EPA, they put out this -- this 18 document, which is an assessment, a 19 screening assessment document, to look at 20 biological plausibility as well as the 21 other epidemiological literature. 22 And they do speak to the 23 causation and they do speak to biological 24 plausibility of talc and its association</p>

52 (Pages 202 to 205)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 206</p> <p>1 or talc and it's causation for ovarian 2 cancer. So they do in that document. 3 The systematic review and 4 meta-analysis 2018 of Taher also speaks 5 of it and reviews the 30 -- I think it's 6 30 -- 30 studies, of which there are 26 7 case-controls and -- studies, and I think 8 four cohort studies. And they do also 9 conclude that, by looking at the 10 meta-analysis, that there are -- that 11 there is causation associated -- that 12 there is causation for talcum powder and 13 ovarian cancer. 14 Q. Actually, Doctor, both 15 documents to which you reference conclude 16 only that perineal use of talcum powder 17 is a possible cause of ovarian cancer, 18 correct? 19 MS. O'DELL: Object to the 20 form. 21 THE WITNESS: They state 22 cause. And if you give me a 23 moment, I can look for it, within 24 the document. So I'm looking at</p>	<p style="text-align: right;">Page 208</p> <p>1 MS. O'DELL: It's Exhibit 9. 2 BY MR. HEGARTY: 3 Q. If you would look -- do you 4 have the Taher review? 5 A. I do. 6 Q. What's that marked as? 7 A. That is Exhibit 10. 8 Q. Exhibit 10? 9 A. Based on your yellow mark, 10 yes. 11 Q. If you look at the abstract 12 under the conclusion section, it 13 concludes that perineal use of talcum 14 powder is a possible cause of human 15 ovarian cancer. 16 Do you see that? 17 A. Excuse me. I dropped my 18 microphone. 19 Okay. Please repeat your 20 question. Your comment. 21 Q. Second page under the 22 conclusion section. The conclusion of 23 the Taher article is, "The perineal use 24 of talc powder is a possible cause of</p>
<p style="text-align: right;">Page 207</p> <p>1 the Health Canada document. 2 Meta -- page -- I'm sorry. 3 Roman Numeral III, "Meta-analysis 4 of the available human studies in 5 the peer-reviewed literature 6 indicate a consistent and 7 statistically significant positive 8 association between perineal 9 exposure to talc and ovarian 10 cancer. Further available data 11 are indicative of causal effect." 12 BY MR. HEGARTY: 13 Q. Okay. What is their 14 ultimate conclusion? 15 A. This is part of their 16 conclusion. 17 Q. Can I look at that document? 18 A. Absolutely. 19 MR. TISI: Is this marked as 20 an exhibit, Mark? 21 MR. HEGARTY: Yes. 22 MR. FINDEIS: Sorry, which 23 number is it marked? So the 24 record is clear.</p>	<p style="text-align: right;">Page 209</p> <p>1 human ovarian cancer," correct? 2 MS. O'DELL: Objection to 3 form. 4 THE WITNESS: I see that 5 conclusion sentence. 6 BY MR. HEGARTY: 7 Q. Nowhere in here do they say 8 that talcum powder causes ovarian cancer, 9 correct? 10 MS. O'DELL: Objection to 11 form. 12 THE WITNESS: If you're 13 looking for a specific sentence, 14 allow me to review. 15 BY MR. HEGARTY: 16 Q. Well, are you going to need 17 to review the entirety of the paper? 18 A. I may. 19 Q. Okay. Well, I can't -- we 20 don't have time for you to review the 21 entirety of the paper so I'll withdraw 22 the question. If you need to review the 23 entirety of the paper. 24 Can you cite here without</p>

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 210</p> <p>1 reviewing it anywhere where they say 2 talcum powder causes ovarian cancer? 3 A. I cannot -- 4 MS. O'DELL: Excuse me. And 5 you're referring specifically to 6 Exhibit 10? 7 MR. HEGARTY: Correct. 8 MS. O'DELL: The Taher 9 paper? 10 THE WITNESS: I can't say it 11 without looking at the paper. 12 BY MR. HEGARTY: 13 Q. Has the Taher paper been 14 peer reviewed? 15 A. The Taher paper has -- is a 16 document that, yes, has been peer 17 reviewed. To my knowledge. 18 Q. Okay. What publication peer 19 reviewed that document? 20 A. Excuse me? 21 Q. Who peer reviewed that 22 document? 23 A. I have -- I have no 24 knowledge of that.</p>	<p style="text-align: right;">Page 212</p> <p>1 letter, information. And I specifically 2 asked that same question. 3 Q. Now, are you relying on the 4 fact it's been peer reviewed for your 5 opinions in this case? 6 A. I'm relying on the science. 7 Q. Well, are you relying on 8 whether -- on what plaintiffs' counsel 9 told you as far as whether it's been peer 10 reviewed? 11 MS. O'DELL: Object to the 12 form. 13 THE WITNESS: That is what 14 I'm trying to look, whether there 15 is an acknowledgment and whether 16 there is a statement within it 17 which says it's peer reviewed. 18 It -- it's stated that in 19 order for this -- in order for a 20 document such as this, and again 21 it depends on what you mean by 22 peer review, whether it's a 23 community or whether it's the 24 government. The government has</p>
<p style="text-align: right;">Page 211</p> <p>1 Q. How do you know it's been 2 peer reviewed? 3 A. The -- the plaintiff lawyers 4 have shown me a document, a cover letter, 5 information, I specifically asked that 6 question of them. 7 Q. And are you relying on what 8 they provided to you for purposes of 9 saying it's peer reviewed? 10 A. Please allow me to -- I'm 11 going to take a look into the document 12 again. There may be evidence that's in 13 the document which says it's peer 14 reviewed. 15 Q. Doctor, what are you looking 16 at for purposes of peer review? I asked 17 you -- 18 A. I'm looking to see -- sorry, 19 please finish your question. 20 Q. I asked you how do you know 21 it's been peer reviewed. 22 A. And I stated that the 23 plaintiff lawyer -- the plaintiffs' 24 lawyers have shown me a document, a cover</p>	<p style="text-align: right;">Page 213</p> <p>1 looked at this, and they were 2 submitted by Health Canada, and as 3 of now it's been submitted for 4 peer review, but it was looked at 5 by the Health Canada and by EPA. 6 BY MR. HEGARTY: 7 Q. What document were you shown 8 that shows it's been peer reviewed? 9 A. On the first page, 10 Exhibit 10, materials submitted to Health 11 Canada, materials submitted to journal 12 for peer review. 13 Q. So it's not been peer 14 reviewed? 15 A. To my knowledge, it has been 16 peer reviewed. And again I'm relying on 17 plaintiffs' attorney with that 18 information. 19 Q. Have you ever cited in a 20 scientific article of yours a publication 21 that's not been peer reviewed? 22 A. All the time. 23 Q. So that's something that -- 24 that you have done as part of your</p>

54 (Pages 210 to 213)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 214</p> <p>1 methodology?</p> <p>2 MS. O'DELL: Object to the</p> <p>3 form.</p> <p>4 THE WITNESS: It's</p> <p>5 something -- if there is -- based</p> <p>6 on my opinion of the study design,</p> <p>7 the information, the science, if</p> <p>8 it -- if it needs to be stated, if</p> <p>9 the science needs to be out there,</p> <p>10 then I have cited numerous times</p> <p>11 unpublished information.</p> <p>12 BY MR. HEGARTY:</p> <p>13 Q. Do you understand that for</p> <p>14 purposes -- that the -- strike that.</p> <p>15 Do you understand that the</p> <p>16 Health Canada risk assessment is a --</p> <p>17 only a draft assessment at this point in</p> <p>18 time?</p> <p>19 A. It is going to be reviewed,</p> <p>20 yes. I understand that it -- it is a</p> <p>21 draft assessment. I also understand that</p> <p>22 it has gone through scrutiny by both</p> <p>23 Health Canada and Canadian EPA.</p> <p>24 Q. Do you understand that</p>	<p style="text-align: right;">Page 216</p> <p>1 or paper that has concluded that there is</p> <p>2 biologic plausibility between talcum</p> <p>3 powder use and ovarian cancer?</p> <p>4 A. Biological plausibility, in</p> <p>5 my case, and for my review and for my</p> <p>6 report, I'm looking at the inflammation</p> <p>7 as a biological plausibility.</p> <p>8 There is data going back and</p> <p>9 scientific reviews and publications going</p> <p>10 back to the '60s which implicate</p> <p>11 inflammation as a biological mediator for</p> <p>12 cancer.</p> <p>13 Q. Doctor, listen to my</p> <p>14 question. My question is very specific</p> <p>15 to talc and the biologic plausibility</p> <p>16 between talc and ovarian cancer.</p> <p>17 Can you cite for me, besides</p> <p>18 the Canadian documents you cited, any</p> <p>19 scientific group, body or organization</p> <p>20 that has concluded that there is biologic</p> <p>21 plausibility between talcum powder use</p> <p>22 and ovarian cancer?</p> <p>23 A. There is biological</p> <p>24 plausibility and there is evidence that</p>
<p style="text-align: right;">Page 215</p> <p>1 there's a comment period that's going on</p> <p>2 right now?</p> <p>3 A. I understand that, yes.</p> <p>4 Q. And that this is not a final</p> <p>5 statement?</p> <p>6 A. Final statement. In any</p> <p>7 document, any regulatory document that --</p> <p>8 those that are put out by the National</p> <p>9 Academy of Science, whatever document</p> <p>10 you're using, there's always a peer</p> <p>11 review or comment period.</p> <p>12 In my opinion, in my</p> <p>13 professional career, documents do not</p> <p>14 change that drastically based upon the</p> <p>15 comments that come in. Based upon</p> <p>16 National Academy of Science, and the</p> <p>17 National Toxicology Program. There are</p> <p>18 usually not -- there are no -- by the</p> <p>19 time it reaches this point, there are no</p> <p>20 substantive comments that allow for</p> <p>21 extensive changes.</p> <p>22 Q. Other than the Canadian</p> <p>23 documents you just cited, can you cite</p> <p>24 for me any other scientific group, body</p>	<p style="text-align: right;">Page 217</p> <p>1 in Step 1, that talc causes inflammation.</p> <p>2 In Step 2, that inflammation is a</p> <p>3 well-known and well-established factor</p> <p>4 in -- in cancer.</p> <p>5 Q. Doctor, you are not</p> <p>6 answering my question. Do you want to</p> <p>7 read my question? My question is very</p> <p>8 specific.</p> <p>9 Can you cite for me any</p> <p>10 scientific body or group or organization,</p> <p>11 other than what you say the Canadian</p> <p>12 group or groups did, that has concluded</p> <p>13 that there is biologic plausibility</p> <p>14 between talcum powder use and ovarian</p> <p>15 cancer?</p> <p>16 MS. O'DELL: Objection.</p> <p>17 Objection to the question. Asked</p> <p>18 and answered.</p> <p>19 THE WITNESS: I stand by my</p> <p>20 answer. That, again, talc can</p> <p>21 cause inflammation. It's well</p> <p>22 known. And inflammation is an</p> <p>23 underpinning for cancer.</p> <p>24 BY MR. HEGARTY:</p>

55 (Pages 214 to 217)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 218</p> <p>1 Q. Okay. Cite for me any 2 scientific group, body or organization 3 who has said that. 4 A. That is throughout 5 literature. If you go back to 1960 and 6 talk about the Vertel and the role of 7 inflammation in cancer, and numerous 8 other publications since that, if you 9 look at -- talc is used to induce 10 pleurodesis because of its inflammatory 11 responsiveness. 12 Q. Doctor, you still are not 13 answering my question. My question is 14 name a scientific body, organization or 15 group who has concluded, as you have 16 done, or you say you do in your paper, 17 that there is biologic plausibility 18 between talc and ovarian cancer. 19 MS. O'DELL: Objection to 20 the form. 21 THE WITNESS: I gave you -- 22 BY MR. HEGARTY: 23 Q. Cite for me the groups. 24 MS. O'DELL: Excuse me. Let</p>	<p style="text-align: right;">Page 220</p> <p>1 biological mechanism that everyone 2 including the National Toxicology, the 3 IARC, the National Academy of Science, 4 EPA, all recognize. 5 Q. Cite for me any group. 6 Again, you are not answering my question. 7 My answer -- 8 A. Okay. 9 Q. -- my question is other than 10 the Canadian groups you've cited, cite 11 for me any group by name who has reached 12 the same opinion as you about biologic 13 plausibility. 14 MS. O'DELL: Objection to 15 form. Other than those she just 16 listed in her last answer? 17 MR. HEGARTY: Well, she 18 didn't list any. I think the 19 record shows that. 20 MS. O'DELL: Yes, she did. 21 MR. HEGARTY: Which ones did 22 she list? 23 MS. O'DELL: NTP. IARC. 24 MR. HEGARTY: Okay. Are you</p>
<p style="text-align: right;">Page 219</p> <p>1 me -- objection to form. Asked 2 and answered. The doctor has 3 answered your question. You may 4 not like the answer, but she's 5 answered it. 6 BY MR. HEGARTY: 7 Q. Cite for me the groups by 8 name. 9 MS. O'DELL: Objection to 10 form. 11 THE WITNESS: Ask the 12 question again? 13 BY MR. HEGARTY: 14 Q. Cite for me any name of any 15 group that has reached the same opinion 16 as you? 17 A. Besides the Health Canada? 18 Q. Correct. 19 A. There are -- I -- you're 20 asking for something that is not -- I'm 21 answering the question by telling you 22 that you have talc which is an 23 inflamagogue, and you have talc and its 24 relationship with cancer. And that is a</p>	<p style="text-align: right;">Page 221</p> <p>1 going on the record to say NTP has 2 concluded that talcum powder use 3 is a biologic 4 plausibility/plausible cause of 5 ovarian cancer? 6 THE WITNESS: We're not -- 7 MS. O'DELL: She was talking 8 about inflammation and cancer, as 9 you well know. 10 MR. HEGARTY: Right, which 11 is why she's not answering my 12 question. 13 MS. O'DELL: No, no. Your 14 question was not in relation to 15 specific talc and biologic 16 plausibility. 17 So the doctor has answered 18 your question. 19 MR. HEGARTY: I think the 20 record will reflect otherwise. 21 BY MR. HEGARTY: 22 Q. Doctor, listen to my 23 question -- 24 MS. O'DELL: No, it will</p>

56 (Pages 218 to 221)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 222</p> <p>1 not. 2 BY MR. HEGARTY: 3 Q. Listen to my question. 4 Can you cite for me any 5 group besides the Canadian group who has 6 concluded that there is biologic 7 plausibility, who has made a statement 8 that there is biologic plausibility 9 between talcum powder use and ovarian 10 cancer? 11 A. I'm telling -- as I said 12 before, you're leaving out the word 13 "inflammation." 14 Q. Doctor, you -- you need to 15 answer the question I ask. 16 A. I -- I -- 17 Q. Your counsel can come back 18 and ask you that question. I under -- I 19 want to know the name of any organization 20 by name who has concluded that there is 21 biologic plausibility between perineal 22 use of talc and ovarian cancer. 23 A. Anyone -- 24 MS. O'DELL: Other than the</p>	<p style="text-align: right;">Page 224</p> <p>1 I've shown, whether it's in air pollution 2 or whether it's in tobacco products or 3 nicotine products or World Trade Center 4 dust or metal inhalation or nanoparticle 5 inhalation. They all give biological 6 plausibility statements for the 7 observations that have been found in my 8 laboratory. 9 Q. Where have you ever 10 published step-by-step methodology for 11 how you go about determining whether 12 there is biological plausibility between 13 a substance and a disease? 14 A. I use my professional 15 judgment. 16 Q. Have you ever published that 17 professional judgment? 18 MS. O'DELL: Objection to 19 form. 20 THE WITNESS: I don't think 21 that would be publishable 22 material. 23 BY MR. HEGARTY: 24 Q. In the end, Doctor, your</p>
<p style="text-align: right;">Page 223</p> <p>1 ones she -- she's listed. 2 THE WITNESS: Anyone that 3 you say -- any -- I'll do it 4 again. National Toxicology 5 Program. IARC. Institute of 6 Medicine. 7 They may not say the 8 sentence you are -- you are 9 implying or you're stating. But 10 they all show that talc has -- 11 produces inflammation. 12 I don't think that the -- I 13 think that's a very common 14 knowledge that talc or talcum 15 powder products does produce 16 inflammation. 17 BY MR. HEGARTY: 18 Q. Doctor, where have you ever 19 published a methodology for determining 20 whether there is biologic plausibility 21 between an exposure and a disease? 22 A. Almost every paper that I 23 have in my CV talks about the biological 24 plausibility for the observations that</p>	<p style="text-align: right;">Page 225</p> <p>1 report is your subjective take on the 2 studies, correct? 3 MS. O'DELL: Objection to 4 form. 5 BY MR. HEGARTY: 6 Q. I mean, you don't speak for 7 any scientific group, do you? 8 A. I'm an expert toxicologist, 9 recognized clearly by the Society of 10 Toxicology as an expert in my field. 11 And -- I'm sorry. I -- 12 Q. Well, is your report 13 speaking for the society -- 14 MS. O'DELL: Excuse me. 15 BY MR. HEGARTY: 16 Q. Is your report speaking for 17 the Society of Toxicology? 18 MS. O'DELL: She wasn't 19 finished. 20 THE WITNESS: I wasn't. I 21 was -- 22 MS. O'DELL: She wasn't 23 finished. Please let the witness 24 finish.</p>

57 (Pages 222 to 225)

Judith Zelikoff, Ph.D.

Page 226	Page 228
<p>1 MR. HEGARTY: I'll withdraw 2 the question. 3 BY MR. HEGARTY: 4 Q. Doctor, do you speak for the 5 Society of Toxicology for purposes of 6 your opinions in your report? 7 A. No. 8 Q. Do you speak for any 9 society, any toxicology society -- 10 society for purposes of your opinions? 11 A. You didn't let me finish my 12 answer. 13 I do not speak for the 14 society of toxicology. But I am a 15 recognized toxicology expert, recognized 16 by the Society of Toxicology as an 17 expert. And I have written this report 18 based upon literature, scientific 19 evidence, and my professional judgment. 20 Q. What society has recognized 21 you as an expert in talc and ovarian 22 cancer? 23 A. I'm recognized as expert in 24 toxicology.</p>	<p>1 form. 2 You can answer. 3 THE WITNESS: This is my 4 opinion based upon my systematic 5 review of all the scientific 6 literature. And they -- by the 7 nature of hiring me, they have 8 approved of my -- my opinions. 9 Maybe not specifically in this 10 case, but they would not have 11 hired me or kept me for 35 years 12 if they did not agree that I was a 13 well-known established 14 toxicologist whose opinions are 15 based in my professional judgment. 16 BY MR. HEGARTY: 17 Q. Did you tell the university, 18 New York University, of your opinions in 19 this case? 20 A. I did not. 21 Q. Have you told them that 22 you're an expert witness for plaintiffs 23 in this litigation? 24 A. I have, yes.</p>
Page 227	Page 229
<p>1 Q. What society has -- 2 A. Society of Toxicology. 3 Q. Has the Society of 4 Toxicology recognized you as an expert in 5 talc and ovarian cancer? 6 MS. O'DELL: Objection to 7 form. 8 THE WITNESS: I was 9 recognized as an expert in tox and 10 ovarian cancer and talc by the 11 very basis that I'm sitting here. 12 BY MR. HEGARTY: 13 Q. You don't speak for your 14 university, do you? 15 A. No one -- no one speaks 16 directly for the university. But what we 17 say, we understand our paychecks come 18 from the university, and we follow within 19 the university and the medical school 20 guidelines. 21 Q. Are your opinions in this 22 case the opinions of New York University? 23 A. This is my -- 24 MS. O'DELL: Objection to</p>	<p>1 Q. Have you reported, in your 2 financial disclosure, the money that 3 you've made in this litigation? 4 A. Up until -- we are asked 5 that question -- we have to fill out 6 reports on transparency and conflicts of 7 interest. And I think the last time I 8 did it was in November of 2018. And I 9 reported up to that time, yes. We are 10 required to do that and, yes, I am 11 completely transparent. 12 So any money that I've made 13 since November, or since the filing of 14 the confidentiality agreement has not 15 been reported but will be coming in March 16 or April. 17 Q. You don't speak for any 18 journal for the purpose of your report, 19 do you? 20 A. For purposes of this report 21 I do not speak for journals. But I do 22 speak for journals because I'm an editor, 23 I'm an associate editor and on the 24 editorial boards for numerous</p>

58 (Pages 226 to 229)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 230</p> <p>1 environmental health and toxicology 2 journals. 3 Q. At the top of Page 3 of your 4 report, you say in the first full 5 paragraph that you considered the studies 6 that did not find an increased risk of 7 ovarian cancer with talc use. 8 Do you see that? 9 MS. O'DELL: What page are 10 you on? I'm sorry. 11 BY MR. HEGARTY: 12 Q. Page 3. 13 A. I'm sorry. I know we're on 14 Page 3. 15 Q. The first full paragraph. 16 A. My opinions below? 17 Q. The first full paragraph. 18 A. My opinions below. "My 19 opinions below" -- 20 Q. At the very -- at the very 21 end, you say you considered those studies 22 that did not find an increased risk. 23 Do you see that? 24 A. I'm reading it.</p>	<p style="text-align: right;">Page 232</p> <p>1 several, there are case-control 2 studies as well as cohort studies 3 which showed negative 4 associations. 5 BY MR. HEGARTY: 6 Q. You did not cite any of 7 those in your report, though, did you? 8 A. No. What I said -- I'm 9 sorry. Let me try and make it clear. 10 Yes, those meta-analyses 11 were included in the report or -- I need 12 to find the names. Systematic review 13 that I cited was 14 P-E-N-N-I-N-K-I-L-A-M-P-I 2018. And that 15 was a meta-analysis which reviewed the 16 epidemiological case-control and cohort 17 studies which showed that there were 18 studies that had negative associations. 19 Q. Is that the only reference 20 that you included in your report, to 21 studies that did not find an increased 22 risk of ovarian cancer with talc use? 23 MS. O'DELL: Object to the 24 form.</p>
<p style="text-align: right;">Page 231</p> <p>1 Yes, okay. You were reading 2 in the middle of the sentence. "To my 3 knowledge, I considered and evaluated the 4 majority of all available relevant 5 studies in the process of evaluating the 6 literature, including those that reported 7 an elevated risk of ovarian cancer with 8 exposure to talc and those where other 9 chemicals were reported within talc-based 10 body powders, including those that did 11 not find an increased risk." Yes. 12 Q. You did not cite a single 13 paper in your report that did not find an 14 increased risk of ovarian cancer with 15 talc use, did you? 16 MS. O'DELL: Objection to 17 form. 18 THE WITNESS: There were -- 19 in reading over the meta-analysis 20 of -- I'm sorry, I'm probably 21 going to get his name wrong -- 22 Penninkilampi. 23 In reading over the 24 meta-analysis of several -- from</p>	<p style="text-align: right;">Page 233</p> <p>1 THE WITNESS: No. No. 2 MS. O'DELL: Excuse me. 3 Object to the form. 4 THE WITNESS: No. Under the 5 animal models on Page 13, there 6 were -- with rats that were 7 exposed by the peritoneum -- 8 perineum, sorry, to either talc or 9 no treatment. And while they did 10 find inflammatory response -- 11 again, going back to my biological 12 plausibility -- they did not find 13 neoplasms. 14 BY MR. HEGARTY: 15 Q. So that would be an example 16 of a study that did not show an increased 17 risk of ovarian cancer with talc use, 18 correct? 19 A. That is -- 20 MS. O'DELL: Object to the 21 form. 22 Go ahead. 23 BY MR. HEGARTY: 24 Q. Is that correct?</p>

59 (Pages 230 to 233)

Judith Zelikoff, Ph.D.

Page 234	Page 236
<p>1 A. Sorry. Repeat the question. 2 Repeat the question, please. 3 Q. Sure. So that is an example 4 of a study that, in your opinion, does 5 not show an increased risk of ovarian 6 cancer with talc use? 7 MS. O'DELL: Objection to 8 form. Go ahead. Sorry. 9 THE WITNESS: Sorry. 10 This is a study which shows 11 biological plausibility by showing 12 that there is a foreign body 13 reaction and inflammatory 14 response. However, it does not 15 show that there was any change in 16 neoplasm -- or any induction of 17 neoplasms or cancer. 18 BY MR. HEGARTY: 19 Q. Did you read any cell study 20 that showed that talc is not cytotoxic? 21 A. Can you please explain what 22 you mean by cytotoxic? I want to answer 23 the question as you understand it. 24 Q. What is your definition of</p>	<p>1 showing that talc was not toxic to cells? 2 A. I read comparison studies. 3 Let me please find that, the exact names. 4 Q. Let me withdraw the 5 question. Doctor, in your opinion is 6 talc mutagenic? 7 A. How do you define 8 "mutagenic"? 9 Q. Doctor, what's your -- 10 mutagenic is mutation to genes. Does 11 talc mutate genes? 12 A. Talc leads to changes in 13 gene expression which can be inferred as 14 a mutation. However, when you talk about 15 mutation, you have many different 16 mechanisms of mutation. Mutation can 17 occur as a result of a genotoxic or 18 direct impact on DNA, or it can occur as 19 a result of changes in the epigenome, 20 which leads to changes in expression of 21 the gene. 22 Q. Does talc directly mutate 23 genes? 24 A. Talc has been shown to</p>
Page 235	Page 237
<p>1 cytotoxicity? 2 A. I'd like to answer the 3 question that you're asking me. 4 Q. I'm asking you your 5 definition. The way a deposition works 6 is I ask you questions. You don't ask me 7 questions. 8 MS. O'DELL: Don't be -- be 9 courteous to the witness, please. 10 MR. HEGARTY: I am. 11 THE WITNESS: I appreciate 12 that. I just want to, as a 13 toxicologist, the word 14 "cytotoxicity" carries many 15 meanings. 16 BY MR. HEGARTY: 17 Q. What is your definition -- 18 basic definition of cytotoxicity? 19 A. There are many meanings. 20 Cytotoxicity taken literally meaning 21 toxicity to a cell. Cyto, cell; 22 toxicity, toxic. However, toxicity can 23 be measured by numerous endpoints. 24 Q. Did you read any studies</p>	<p>1 cause -- to cause changes in particular 2 enzymes in the gene expression. So a 3 mutation -- yes, it has been -- it has 4 been shown for mutation. But I just 5 need -- I need the attorneys to 6 understand that there are many ways to 7 mutate a cell, not only can you do it by 8 chemical agent, but you can also -- it 9 occurs with aging. 10 So you do not need -- I'm 11 sorry. You do not need genotoxicity to 12 produce mutagenesis. 13 Now, if you look at many 14 different assays such as the Ames assay 15 which uses bacteria to assess 16 mutagenicity, you are not going to see 17 that as a possibility for talc because 18 the bacteria cannot engulf the particle 19 and the particle needs to be ingested in 20 order to show mutagenesis. 21 Q. Doctor, on Page 4 above your 22 section "fibrous talc" -- 23 A. I see it. 24 Q. -- you refer to particle</p>

60 (Pages 234 to 237)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 238</p> <p>1 size for talc. 2 A. That's correct. 3 Q. Is knowing particle size 4 part of your methodology for your 5 opinions in your report? 6 A. I'm sorry. I don't 7 understand what you mean by was it part 8 of my methodology. 9 Q. Well, what is the threshold 10 size of a talc particle to establish 11 biologic plausibility? 12 MS. O'DELL: Object to form. 13 THE WITNESS: I don't think 14 you can answer that question. 15 In -- let me say this. 16 In doing my methodology and 17 accumulating literature, I -- as I 18 said, I binned or siloed 19 individual things. 20 And one of the silos and one 21 of the categories that I -- that I 22 wanted to read was size. Size 23 makes a very big difference in 24 particles, and for example, if the</p>	<p style="text-align: right;">Page 240</p> <p>1 THE WITNESS: Establishing 2 my biological plausibility was -- 3 was travel -- is traveling through 4 migration and the ability for a -- 5 for the powder to migrate or the 6 constituents to migrate. And -- 7 and also the ability to be 8 inflammatory. 9 BY MR. HEGARTY: 10 Q. Well, what size -- what size 11 of particle -- what size must the 12 particle be to cause inflammation that 13 leads to ovarian cancer? 14 A. Particles of any -- 15 MS. O'DELL: Objection to 16 form. You may go. 17 THE WITNESS: Particles of 18 any size can cause inflammation. 19 BY MR. HEGARTY: 20 Q. What about talc particles, 21 what size of talc particle must there be 22 to cause inflammation? 23 A. Talc particles of any size 24 can cause inflammation.</p>
<p style="text-align: right;">Page 239</p> <p>1 particle is greater than 2 10 microns it's going to be what 3 we call inhalable as opposed to 4 respirable. So where a particle 5 can go in terms of, and now I'm 6 using the lung as an example, 7 where the particle can go will 8 depend upon its size and how long 9 it will remain in a tissue. 10 So in my bins, in my silos 11 were -- certainly size was a 12 parameter. 13 BY MR. HEGARTY: 14 Q. And what is the threshold 15 size of a talc particle to establish 16 biologic plausibility between talc and 17 ovarian cancer? 18 MS. O'DELL: Objection to 19 the form. 20 BY MR. HEGARTY: 21 Q. What size must the particle 22 be? 23 MS. O'DELL: Objection to 24 form.</p>	<p style="text-align: right;">Page 241</p> <p>1 Q. And is there -- 2 A. However, there are 3 differences, from reading the literature, 4 that indicates that the smaller the 5 particle the greater the inflammation. 6 And that's universally 7 known. 8 Q. Was part of your analysis, 9 did you -- did that involve investigating 10 biologic plausibility as it relates to 11 particle size? 12 A. That was -- that was part of 13 my reading and part of my -- my thought 14 process, my gathering of information, 15 yes. 16 Q. And is there a certain size 17 of particle necessary to establish 18 biologic plausibility under your opinion? 19 MS. O'DELL: Objection. 20 Asked and answered. 21 THE WITNESS: Well, I do 22 think I answered that question. 23 But again there's really -- 24 apart -- it is not just particle</p>

61 (Pages 238 to 241)

Judith Zelikoff, Ph.D.

Page 242	Page 244
<p>1 size which is important in 2 producing an inflammation. It is 3 many parameters. And so there was 4 no one size or one cutoff that 5 induces inflammation or does not. 6 It's chemical composition, it's 7 shape of the particle, it's 8 bioavailability of the particle. 9 BY MR. HEGARTY: 10 Q. Can you cite for me the -- 11 the particle size for Johnson's Baby 12 Powder over the last 120 years? 13 MS. O'DELL: Objection to 14 form. 15 THE WITNESS: I'm not sure I 16 can cite it over the last 17 120 years. But I can tell you 18 from the information in the 19 documents that I -- that I 20 reviewed, that particle size goes 21 from above 50 microns, 22 micrometers, microns, down to 23 0.3 micron with an average size of 24 10.5 to 11.5 depending on the</p>	<p>1 Q. Well, fibrous talc is only 2 talc that grows in an -- in an 3 asbestiform habit, correct? 4 A. Fibrous talc refers to the 5 shape and the longitudinal direction of 6 the fibers. That's what fibrous talc is, 7 and asbestiform refers to the same 8 longitudinal pattern of the particular 9 fibrils and -- to form a bundle or to 10 form a fiber. 11 Q. So you don't agree that 12 fibrous talc is only talc that grows in 13 an asbestiform habit? 14 MS. O'DELL: Objection to 15 form. 16 THE WITNESS: Fibrous talc 17 by its very nature is saying that 18 it grows in an asbestiform-like 19 phenotype or asbestiform-like 20 morphology. That's the nature of 21 asbestiform. 22 Asbestiform is a form. 23 BY MR. HEGARTY: 24 Q. You state in the middle</p>
Page 243	Page 245
<p>1 document that you read. So an 2 average or median size. 3 BY MR. HEGARTY: 4 Q. So did you -- did you do 5 analysis for biologic plausibility 6 purposes of every size of talc particle? 7 MS. O'DELL: Objection. 8 Asked and answered. 9 THE WITNESS: Did I do 10 analysis -- I -- no, as I said, I 11 gave you the size of the -- of the 12 talcum that was reviewed, that I 13 reviewed within the documents. 14 BY MR. HEGARTY: 15 Q. You, on -- on page -- strike 16 that. 17 Under the section Fibrous 18 Talc, you say that -- is it your 19 testimony that -- strike that. 20 Is it your opinion that 21 asbestiform talc is also called fibrous 22 talc? 23 A. Talc and asbestos are -- are 24 different minerals.</p>	<p>1 paragraph, in that section, that talc in 2 its fibrous form has been classified by 3 IARC as Group I, a known carcinogen. 4 That's not correct, is it? 5 MS. O'DELL: Objection to 6 form. 7 THE WITNESS: I'm sorry, 8 could you say again? 9 BY MR. HEGARTY: 10 Q. Well, you agree that only 11 talc containing asbestiform fibers has 12 been classified as Group I by IARC, 13 correct? 14 A. Are you referring to in 2010 15 IARC expanded or -- I'm sorry, in its 16 fibrous form, talc has been classified as 17 a Group I known carcinogen? 18 Q. Correct. 19 A. Asbestiform fibers have been 20 listed by IARC as a carcinogen. 21 Q. A talc containing 22 asbestiform fibers is the only form of 23 talc that's been designated as a class -- 24 as a Category I carcinogen by IARC,</p>

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 246</p> <p>1 correct?</p> <p>2 A. It's not the only one that's</p> <p>3 been associated with it, but for the</p> <p>4 purpose of my report that I put down,</p> <p>5 it's the asbestiform that has been</p> <p>6 classified by the IARC.</p> <p>7 Q. Well, it's talc containing</p> <p>8 asbestiform fibers, correct?</p> <p>9 MS. O'DELL: Objection to</p> <p>10 form.</p> <p>11 THE WITNESS: It's -- it's</p> <p>12 fibrous talc.</p> <p>13 BY MR. HEGARTY:</p> <p>14 Q. Is that -- that's your --</p> <p>15 your -- it's your opinion that IARC's</p> <p>16 designation in 2012 is of asbestiform</p> <p>17 talc?</p> <p>18 A. Their designations is</p> <p>19 form -- is talc fibers, which are</p> <p>20 asbestiform in nature.</p> <p>21 Q. Do you cite to any published</p> <p>22 data in the medical literature that</p> <p>23 asbestiform talc has been found in</p> <p>24 Johnson's Baby Powder?</p>	<p style="text-align: right;">Page 248</p> <p>1 Can you cite for me any published medical</p> <p>2 literature finding asbestiform talc in</p> <p>3 Johnson's Baby Powder?</p> <p>4 A. Page 6 of my report speaks</p> <p>5 of the Crowley report, and that the fiber</p> <p>6 content ranged from 8 percent to</p> <p>7 30 percent. And that Pooley and Rohl</p> <p>8 analyzed 27 talc powders and detected</p> <p>9 tremolite fibers in three samples.</p> <p>10 Q. Is it your testimony that</p> <p>11 Crowley -- Crowley's article refers to</p> <p>12 Johnson's Baby Powder?</p> <p>13 A. I would have to see the</p> <p>14 article.</p> <p>15 Q. How about Pooley and Rohl,</p> <p>16 do they refer to Johnson's Baby Powder?</p> <p>17 A. I would have to see the</p> <p>18 article.</p> <p>19 Q. In the end, for purposes of</p> <p>20 your opinion as to asbestos and talc,</p> <p>21 you're relying on the report of Longo and</p> <p>22 Rigler, correct?</p> <p>23 MS. O'DELL: Objection to</p> <p>24 form.</p>
<p style="text-align: right;">Page 247</p> <p>1 A. I'm sorry.</p> <p>2 You cite -- do you cite to</p> <p>3 any published data in the medical</p> <p>4 literature that asbestiform talc...</p> <p>5 The documents, the published</p> <p>6 documents within Johnson & Johnson and</p> <p>7 the Longo report, Longo's 2017, as well</p> <p>8 as 2018 supplement from December, shows</p> <p>9 asbestiform fibers.</p> <p>10 Q. My question though is can</p> <p>11 you cite any data published in the</p> <p>12 medical literature that has found</p> <p>13 asbestiform talc in Johnson's Baby</p> <p>14 Powder?</p> <p>15 A. I thought I just did in</p> <p>16 terms of the Longo report.</p> <p>17 Q. Is the Longo report</p> <p>18 published in the medical literature?</p> <p>19 A. It's -- I'm not sure whether</p> <p>20 it's accessible in the medical -- medical</p> <p>21 literature at this point. But I'm sure</p> <p>22 it could be gathered.</p> <p>23 Q. My -- my question is solely</p> <p>24 as to the published medical literature.</p>	<p style="text-align: right;">Page 249</p> <p>1 THE WITNESS: No, I rely on</p> <p>2 the scientific literature, not on</p> <p>3 any one paper. I used weight of</p> <p>4 evidence to come to my opinion.</p> <p>5 BY MR. HEGARTY:</p> <p>6 Q. Did you include in your</p> <p>7 weighing of evidence the expert reports</p> <p>8 of Longo and Rigler?</p> <p>9 A. I read the Longo supplement</p> <p>10 2018 after I wrote the report.</p> <p>11 Q. For purposes -- for purposes</p> <p>12 of the opinions again in this case, do</p> <p>13 you rely in any way on the Longo and</p> <p>14 Rigler reports?</p> <p>15 MS. O'DELL: Objection to</p> <p>16 form.</p> <p>17 THE WITNESS: I'm not sure I</p> <p>18 understand your question. As I</p> <p>19 said, I wrote the report on</p> <p>20 November 16th. I read the Longo</p> <p>21 supplement report in -- about two</p> <p>22 weeks ago.</p> <p>23 BY MR. HEGARTY:</p> <p>24 Q. But you cite in your report</p>

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 250</p> <p>1 the -- the MDL report of Longo and 2 Rigler, correct? 3 A. What page is that please? 4 Q. At the end of Exhibit B. 5 A. I -- okay. 6 Excuse me. I referred to 7 Longo on page -- there is no page. 8 Sorry. 9 The cosmetic talc in the 10 Lancet and cosmetic talc in -- and 11 ovarian cancer in the Lancet. Those are 12 very early papers which I -- which I 13 reviewed. Those papers were considered. 14 The latest papers from Longo were not 15 considered in my report. 16 Q. Are you talking about the 17 latest -- 18 A. 2017, 2018. They were not 19 read until after the report was 20 finalized. 21 Q. Do you know Longo and 22 Rigler? 23 A. Not at all. 24 THE VIDEOGRAPHER: Doctor,</p>	<p style="text-align: right;">Page 252</p> <p>1 use, the polarized light 2 microscopy and the TEM all seem to 3 be the way he describes it. His 4 methodologies were spot on in 5 terms of what other people do. 6 BY MR. HEGARTY: 7 Q. Are you an expert in XRD? 8 A. As I stated, I worked with 9 people who used the instrumentation. An 10 expert, again, I'm not sure what you mean 11 by expert. Have I done XRD on my own, 12 no. But in our department we have 13 numerous people who -- who use that 14 instrumentation. 15 Q. Are you an expert in TEM? 16 A. I have done TEM for my Ph.D. 17 thesis. 18 Q. Have you do TEM -- have you 19 ever done TEM to detect asbestos? 20 A. I have not done TEM to 21 detect asbestos. But I looked at his 22 methodologies, his study design, and the 23 instruments that he used. And they are 24 state of the art.</p>
<p style="text-align: right;">Page 251</p> <p>1 can you raise your microphone up? 2 THE WITNESS: Oh, sure. 3 BY MR. HEGARTY: 4 Q. Did you do anything to 5 assess their expertise in this area? 6 A. I -- I -- 7 MS. O'DELL: Are you 8 referring to Dr. Longo and 9 Dr. Rigler? 10 MR. HEGARTY: Yes. 11 THE WITNESS: I read the -- 12 the bio sketch, a brief, very 13 brief bio sketch of Ray Longo. 14 And I looked up his credentials in 15 terms of how long he's been in 16 the -- in this company, how he 17 started this company or at least 18 was president of this company for 19 a short period of time. 20 From what I know of my own 21 work in the laboratory and working 22 with other chemists and technical 23 instrumentation people in the 24 laboratory, I -- the XRD that they</p>	<p style="text-align: right;">Page 253</p> <p>1 Q. Have you ever performed the 2 test that he describes in his articles or 3 reports? 4 A. I have used polarized light 5 microscopy. 6 Q. That's not my question. My 7 question is have you performed the same 8 tests in your lab or in any -- in your 9 experience that he has performed and 10 reported on in his reports? 11 A. Personally, no. 12 Q. Starting on Page 5, you talk 13 about asbestos. 14 A. Page 5 of what? 15 Q. Of your report. 16 A. Thank you. 17 Q. Is it your opinion that any 18 amount of exposure to asbestos, even to a 19 single fiber, can cause disease? 20 A. From the scientific 21 literature it is -- it appears -- it 22 appears pretty conclusive that there is 23 no threshold for the amount of 24 asbestiform asbestos that is needed to at</p>

64 (Pages 250 to 253)

Judith Zelikoff, Ph.D.

Page 254	Page 256
<p>1 least start a disease process.</p> <p>2 Q. Before being contacted by</p> <p>3 counsel for plaintiffs in this case, had</p> <p>4 you read any literature concerning</p> <p>5 asbestos and ovarian cancer?</p> <p>6 A. I have not read literature</p> <p>7 prior to that on asbestos and ovarian</p> <p>8 cancer. However, I am familiar with, as</p> <p>9 I said, other particles, other dusts,</p> <p>10 other fibers that I have worked with in</p> <p>11 the laboratory.</p> <p>12 Q. Had you even heard of a link</p> <p>13 between asbestos and ovarian cancer</p> <p>14 before being contacted by plaintiffs'</p> <p>15 counsel?</p> <p>16 A. Yes.</p> <p>17 Q. Where did you hear that</p> <p>18 from?</p> <p>19 A. Discussed it with my</p> <p>20 colleagues. As I said, I've listened to</p> <p>21 the media on discussing it. And my</p> <p>22 colleagues are a very good source,</p> <p>23 although they do not do this work in</p> <p>24 their laboratory, we all try to keep up</p>	<p>1 THE WITNESS: I don't think</p> <p>2 that's -- I don't think that's --</p> <p>3 I don't personally think that's</p> <p>4 the question.</p> <p>5 The question is, asbestos is</p> <p>6 well classified, well known as a</p> <p>7 Class 1 carcinogen by IARC. And</p> <p>8 one fiber has the potential to</p> <p>9 initiate the biological processes</p> <p>10 or provides biological</p> <p>11 plausibility that there, in fact,</p> <p>12 by producing inflammation and</p> <p>13 producing reactive oxygen</p> <p>14 intermediates, one fiber can start</p> <p>15 the process for ovarian cancer.</p> <p>16 And again, let me just</p> <p>17 repeat that my mission, my</p> <p>18 question that was asked, was to</p> <p>19 provide biological plausibility</p> <p>20 for talc, not to define causation</p> <p>21 as an epidemiologist.</p> <p>22 BY MR. HEGARTY:</p> <p>23 Q. So it's your opinion that a</p> <p>24 single fiber of asbestos in talc can</p>
Page 255	Page 257
<p>1 with the latest emerging scientific</p> <p>2 debates.</p> <p>3 Q. What is the minimum number</p> <p>4 of asbestos fibers necessary to cause</p> <p>5 ovarian cancer?</p> <p>6 A. Can -- do you mean -- I said</p> <p>7 that there is really no threshold. And</p> <p>8 it can be one fiber. It depends on the</p> <p>9 individual and the susceptibilities and</p> <p>10 the vulnerabilities of that particular</p> <p>11 individual.</p> <p>12 Q. So it's your opinion that</p> <p>13 one fiber of asbestos can cause ovarian</p> <p>14 cancer?</p> <p>15 A. Under certain conditions,</p> <p>16 yes, it is my opinion.</p> <p>17 Q. Can you cite for me any</p> <p>18 authority for that opinion specific to</p> <p>19 one fiber?</p> <p>20 MS. O'DELL: Object to form.</p> <p>21 BY MR. HEGARTY:</p> <p>22 Q. And ovarian cancer.</p> <p>23 MS. O'DELL: Object to the</p> <p>24 form.</p>	<p>1 establish biological plausibility between</p> <p>2 talc and ovarian cancer?</p> <p>3 A. My --</p> <p>4 MS. O'DELL: Object to the</p> <p>5 form.</p> <p>6 THE WITNESS: My opinion is</p> <p>7 that a single fiber can induce</p> <p>8 inflammation and reactive oxygen</p> <p>9 species and can change the cell</p> <p>10 into a pro-oxidant cell that</p> <p>11 starts the process for ovarian</p> <p>12 cancer.</p> <p>13 BY MR. HEGARTY:</p> <p>14 Q. Do you agree that there are</p> <p>15 background rates of asbestos in certain</p> <p>16 areas?</p> <p>17 A. Do you mean in the air?</p> <p>18 Q. In the air?</p> <p>19 A. In the air, it depends on</p> <p>20 that area. If that's an area where</p> <p>21 there's mining or there's a house being</p> <p>22 redone from the 1970s or 19 -- early '80s</p> <p>23 that might have used asbestos, then there</p> <p>24 will be asbestos in the air. But not</p>

65 (Pages 254 to 257)

Judith Zelikoff, Ph.D.

Page 258	Page 260
<p>1 sitting in this room, unless there is</p> <p>2 asbestos in the walls, which I doubt</p> <p>3 because it was only built about ten years</p> <p>4 ago.</p> <p>5 Q. Do the background rates of</p> <p>6 asbestos in certain areas cause ovarian</p> <p>7 cancer?</p> <p>8 A. Asbestos has been shown to</p> <p>9 cause ovarian cancer by inhalation, yes.</p> <p>10 Q. Is it your opinion that</p> <p>11 background rates of asbestos in the air</p> <p>12 can cause ovarian cancer?</p> <p>13 MS. O'DELL: Object to the</p> <p>14 form.</p> <p>15 THE WITNESS: I don't --</p> <p>16 again, background rates, it has</p> <p>17 been shown that workers that are</p> <p>18 in places where asbestos is made</p> <p>19 have a higher incidence of lung</p> <p>20 cancer as shown by Dr. Selikoff</p> <p>21 many, many years ago.</p> <p>22 BY MR. HEGARTY:</p> <p>23 Q. Doctor, you know what a</p> <p>24 background rate of -- background level of</p>	<p>1 A. It depends. After the World</p> <p>2 Trade Center, there was.</p> <p>3 Q. Are those background</p> <p>4 levels -- do those background levels</p> <p>5 cause ovarian cancer?</p> <p>6 MS. O'DELL: Objection to</p> <p>7 the form.</p> <p>8 THE WITNESS: The studies</p> <p>9 that have been done by my</p> <p>10 colleagues in the aftermath of the</p> <p>11 World Trade Center disaster where</p> <p>12 asbestos was generated have not at</p> <p>13 this time -- and New York City</p> <p>14 Public Health has not at this time</p> <p>15 looked at ovarian cancer. Ovarian</p> <p>16 cancer occurs within 10 to 30, up</p> <p>17 to 40 years later. So since 9/11</p> <p>18 was only 2001, there is -- there</p> <p>19 is not sufficient time to have</p> <p>20 developed ovarian cancer.</p> <p>21 BY MR. HEGARTY:</p> <p>22 Q. Doctor, before 9/11 there</p> <p>23 were background levels of asbestos in</p> <p>24 certain parts of New York City, correct?</p>
Page 259	Page 261
<p>1 a particle in air is, right?</p> <p>2 A. Yes, sir, I do.</p> <p>3 Q. Okay. And is it your</p> <p>4 opinion that background levels of</p> <p>5 asbestos in the air can cause ovarian</p> <p>6 cancer?</p> <p>7 MS. O'DELL: Objection to</p> <p>8 form.</p> <p>9 THE WITNESS: As I said,</p> <p>10 sitting in this room, there should</p> <p>11 not be any background level of</p> <p>12 asbestos. So if you're talking</p> <p>13 about background level in a</p> <p>14 particular institute or industry</p> <p>15 where they're developing it, those</p> <p>16 levels are quite high, and yes, I</p> <p>17 do believe that those levels</p> <p>18 within a working environment can</p> <p>19 indeed cause inflammation that can</p> <p>20 lead to causation.</p> <p>21 BY MR. HEGARTY:</p> <p>22 Q. There are background levels</p> <p>23 of asbestos in the air in New York City,</p> <p>24 correct?</p>	<p>1 A. When there are houses that</p> <p>2 were built with it. There is -- asbestos</p> <p>3 is not just -- should not be -- unless</p> <p>4 there's a source, asbestos should not --</p> <p>5 it would not be coming from jet engines.</p> <p>6 It would not be coming from other</p> <p>7 sources. If it's there, it came from a</p> <p>8 specific source. It's like we should not</p> <p>9 have lead in our body at all. But we do</p> <p>10 because the lead came from the air where</p> <p>11 there was lead in the gasoline.</p> <p>12 So there shouldn't be</p> <p>13 background levels of asbestos just</p> <p>14 hanging around unless there's an adequate</p> <p>15 source that produced it.</p> <p>16 Q. Does EPA allow background</p> <p>17 levels of asbestos in water?</p> <p>18 A. I'm not familiar with that</p> <p>19 information. That's in water. You asked</p> <p>20 me about air.</p> <p>21 Q. I asked you a different</p> <p>22 question. I can ask you a different</p> <p>23 question, Doctor.</p> <p>24 A. I understand the question,</p>

66 (Pages 258 to 261)

Judith Zelikoff, Ph.D.

Page 262	Page 264
<p>1 yes.</p> <p>2 Q. Does EPA allow background</p> <p>3 levels of asbestos in water?</p> <p>4 A. I have not reviewed that</p> <p>5 literature.</p> <p>6 Q. As a toxicologist, you agree</p> <p>7 that dose or level of exposure determines</p> <p>8 the toxicity of substances, correct?</p> <p>9 MS. O'DELL: Object to the</p> <p>10 form.</p> <p>11 THE WITNESS: I believe that</p> <p>12 dose as well as frequency,</p> <p>13 duration, time of exposure are</p> <p>14 all -- as well as dose contribute</p> <p>15 to the toxicity of an agent.</p> <p>16 BY MR. HEGARTY:</p> <p>17 Q. You agree that a substance</p> <p>18 can produce a harmful effect only if it</p> <p>19 reaches a susceptible biological system</p> <p>20 within the body in high enough</p> <p>21 concentration, correct?</p> <p>22 MS. O'DELL: Objection to</p> <p>23 form.</p> <p>24 THE WITNESS: It depends on</p>	<p>1 not been done.</p> <p>2 There are -- there is</p> <p>3 information on no observable</p> <p>4 adverse effect level that has been</p> <p>5 established using a dose-response</p> <p>6 by the NTP, National Toxicology</p> <p>7 Program.</p> <p>8 And two milligrams of talc</p> <p>9 that they used produced minimal --</p> <p>10 minimal affects in the rats and</p> <p>11 mice that they tested. So</p> <p>12 somewhere below at least, from an</p> <p>13 inhalation perspective, is --</p> <p>14 produces no effect.</p> <p>15 However, they saw effects</p> <p>16 even at the lowest, two milligrams</p> <p>17 per.</p> <p>18 BY MR. HEGARTY:</p> <p>19 Q. My question was specific to</p> <p>20 ovarian cancer. That study did not --</p> <p>21 did not identify any ovarian cancers in</p> <p>22 the mice -- in the mice or rats, correct?</p> <p>23 A. That's not what they looked</p> <p>24 for.</p>
Page 263	Page 265
<p>1 the -- let me read your question</p> <p>2 over. It was a lengthy question.</p> <p>3 It depends on the -- on the</p> <p>4 toxicant that you're talking</p> <p>5 about. There is dose that you're</p> <p>6 exposed to, or concentration that</p> <p>7 you're supposed to, and dose to</p> <p>8 the target tissue. And for every</p> <p>9 different -- every different</p> <p>10 chemical, there is a different</p> <p>11 target dose that could start a</p> <p>12 biological process.</p> <p>13 BY MR. HEGARTY:</p> <p>14 Q. And what is the target dose</p> <p>15 that is necessary to start the biologic</p> <p>16 process of talc and ovarian cancer?</p> <p>17 MS. O'DELL: Object to the</p> <p>18 form.</p> <p>19 THE WITNESS: Well, if</p> <p>20 you -- if you look at talc as a</p> <p>21 whole, to give you a</p> <p>22 concentration, a threshold</p> <p>23 concentration, I'm not sure that</p> <p>24 has been -- I don't -- that has</p>	<p>1 Q. My question is specific to</p> <p>2 ovarian cancer.</p> <p>3 A. Let me read your question</p> <p>4 over again. Could you repeat your</p> <p>5 question. It's already gone past.</p> <p>6 Q. What is the target dose that</p> <p>7 is necessary to start the biologic</p> <p>8 process of talc and ovarian cancer?</p> <p>9 A. Well, as I talked about, one</p> <p>10 fiber of asbestos could start the</p> <p>11 biological process. It is not clear if</p> <p>12 there is a threshold dose or a</p> <p>13 concentration, or whether one -- and</p> <p>14 we're talking about the whole talcum</p> <p>15 powder product. We're not talking about</p> <p>16 any one product. You're talking about</p> <p>17 the whole process and how much it will</p> <p>18 start the biological process.</p> <p>19 It's unknown, it's not in</p> <p>20 the literature. But I will tell you that</p> <p>21 even small doses that are used of the</p> <p>22 talcum -- of a talcum product, if you</p> <p>23 take a woman who takes a handful, if you</p> <p>24 take a woman that takes a little bit on a</p>

67 (Pages 262 to 265)

Judith Zelikoff, Ph.D.

Page 266	Page 268
<p>1 powder puff, that amount could even, 2 depending upon the woman, the 3 susceptibility, the vulnerability, can 4 all start the process. 5 We're talking about the 6 process, in my opinion. What you're 7 talking about and in the opinion that I 8 report here, is that that can start an 9 inflammatory process. 10 Q. And what is the number of 11 particles of talc necessary to start the 12 biologic process? 13 MS. O'DELL: Object to form. 14 THE WITNESS: That is not in 15 the scientific literature. 16 BY MR. HEGARTY: 17 Q. Over Pages 6 through 8 of 18 your report you discuss asbestos. Is the 19 presence of asbestos in talc necessary 20 for your biologic plausibility opinions? 21 A. I looked at the entire 22 product. 23 Q. Well, do you intend to 24 testify that there is biologic</p>	<p>1 THE WITNESS: Can -- can you 2 address the question again? 3 BY MR. HEGARTY: 4 Q. Is it your opinion that pure 5 talc does not exist? 6 When I say pure talc, I mean 7 talc without asbestos, without heavy 8 metals, without fragrance. 9 MS. O'DELL: Objection to 10 form. 11 THE WITNESS: The idea of 12 talc is that it has, within its 13 lattice, metals. 14 So platy talc refers to the 15 structure or the morphology of the 16 talc, how it looks, what 17 dimensions it's in. 18 So, do I think there is 19 platy talc? Of course there is 20 platy talc. 21 BY MR. HEGARTY: 22 Q. Is there platy talc without 23 asbestos? 24 A. Well, according to the</p>
Page 267	Page 269
<p>1 plausibility between pure talc, the platy 2 talc, and ovarian cancer? 3 MS. O'DELL: Object to the 4 form. 5 THE WITNESS: I don't 6 think -- my opinion is that there 7 may not be anything such as platy 8 talc in a pure form. 9 BY MR. HEGARTY: 10 Q. Okay. It's your opinion 11 that pure talc does not exist? 12 MS. O'DELL: I'm not sure 13 she -- she finished her answer. 14 Had you finished, Doctor, 15 before? 16 THE WITNESS: I actually 17 need a little water. 18 MS. O'DELL: Okay. Sure. 19 Had you finished your answer 20 before the second question was 21 asked? 22 THE WITNESS: No. 23 MS. O'DELL: Okay. You may 24 finish.</p>	<p>1 studies out of Mossman's laboratories, 2 they used asbestos, they used talc that 3 contained nonfibrous talc. 4 Q. Do you have an opinion on 5 whether there is talc without asbestos? 6 MS. O'DELL: Object to the 7 form. 8 THE WITNESS: In many of the 9 documents from Johnson & Johnson, 10 they measured fibrous talc as well 11 as other forms, non-asbestiform, 12 and they -- they found that there 13 were samples, individual samples 14 that they reported as 15 nondetectable as having 16 asbestiform talc. 17 BY MR. HEGARTY: 18 Q. Well, do you have an opinion 19 of whether there is talc without 20 asbestos? 21 A. It depends where -- where 22 it's mined. If it's mined in an area 23 where people were extremely cautious, 24 there could be.</p>

68 (Pages 266 to 269)

Judith Zelikoff, Ph.D.

Page 270	Page 272
<p>1 Q. Did you do analysis of 2 biologic plausibility for talc without 3 asbestos? 4 MS. O'DELL: Objection to 5 form. 6 THE WITNESS: My biological 7 assessment, my -- my biological 8 plausibility was looking at the 9 entire product of talcum powder. 10 BY MR. HEGARTY: 11 Q. And how do you define the 12 entire product? 13 A. The entire product is 14 whatever are the ingredients or listed 15 within the documents or the test results 16 from Imerys that -- that indicate what 17 they measured, including the metals, the 18 asbestos, the -- the asbestiform fibers, 19 the fragrances. 20 Q. So you did your biologic 21 plausibility analysis with -- based on 22 talc that has asbestos, heavy metals and 23 fragrance in it, correct? 24 MS. O'DELL: Objection to</p>	<p>1 sure how that would be done or I 2 don't think it could be done. 3 What I did was I did it for 4 the entire product. 5 BY MR. HEGARTY: 6 Q. And what do you -- what do 7 you think -- what is your opinion -- 8 strike that. 9 What is in the entire 10 product in your opinion? 11 A. Based upon the Johnson & 12 Johnson documents. That's where my -- 13 that's where I will tell you what is in 14 there. 15 As -- as far as the product 16 documents, it indicates that there are 17 metals, including -- not -- not totally 18 inclusive of, but to mention a few of the 19 more well-known ones, cobalt, chromium 20 and nickel. 21 There are also, according to 22 the Crowley report, there are also many 23 chemicals that make up a fragrance. And 24 there -- and in many of the samples</p>
Page 271	Page 273
<p>1 form. 2 THE WITNESS: I did my 3 biological plausibility on talcum 4 powder products. 5 I looked at individual 6 products, individual constituents 7 in adding to my -- to my report, 8 to my document. But I looked at 9 the entire product. And it is my 10 opinion that the entire product 11 causes inflammation and that 12 inflammation then goes on as a 13 triggering mechanism to turn on 14 certain genes and to bind iron 15 that can lead to the changes 16 needed for cancer in the ovary. 17 BY MR. HEGARTY: 18 Q. You did not do a separate 19 analysis of talc without asbestos or 20 without -- and without heavy metals and 21 without fragrance, correct? 22 MS. O'DELL: Object to the 23 form. 24 THE WITNESS: I'm not even</p>	<p>1 tested, there was asbestos or asbestiform 2 fibers, some of which were called fibrous 3 talc, others were called asbestiform and 4 others in which they were called asbestos 5 fibers, or amphiboles or anthophyllite. 6 Q. Did you review all the 7 test -- 8 A. Anthophyllite. 9 Q. I'm sorry. 10 Did you review all the 11 testing documents produced by Johnson & 12 Johnson and Imerys in this case? 13 A. I reviewed the documents 14 that are in the production document black 15 binder to my right. 16 Q. Those were provided to you 17 by plaintiffs' counsel, correct? 18 A. That is correct. 19 Q. Did you ask them if they 20 provided to you all testing documents 21 that had been produced in this case with 22 regard -- by Johnson & Johnson and 23 Imerys? 24 A. I did not ask that question</p>

69 (Pages 270 to 273)

Judith Zelikoff, Ph.D.

Page 274	Page 276
<p>1 specifically.</p> <p>2 Q. Do you know whether there</p> <p>3 are additional documents of tests --</p> <p>4 documents describing tests that were done</p> <p>5 by Johnson & Johnson and/or Imerys with</p> <p>6 regard to asbestos, heavy metals,</p> <p>7 fragrances and talc?</p> <p>8 MS. O'DELL: Object to form.</p> <p>9 THE WITNESS: Plaintiff</p> <p>10 counsels and myself did talk about</p> <p>11 that, some of that information,</p> <p>12 and --</p> <p>13 MS. O'DELL: Doctor,</p> <p>14 don't -- in terms of our</p> <p>15 conversations --</p> <p>16 THE WITNESS: I'm sorry.</p> <p>17 MS. O'DELL: -- those</p> <p>18 conversations are our work</p> <p>19 product.</p> <p>20 But to the degree that your</p> <p>21 answer doesn't depend on our</p> <p>22 conversations, you may -- you may</p> <p>23 answer.</p> <p>24 THE WITNESS: I -- I made it</p>	<p>1 not present.</p> <p>2 Q. You relied on plaintiffs'</p> <p>3 counsel to select for you the testing</p> <p>4 documents that you reviewed, correct?</p> <p>5 A. I -- I read and reviewed</p> <p>6 whatever they sent me.</p> <p>7 Q. And did you do anything to</p> <p>8 verify that you had all the documents</p> <p>9 regarding the testing of Johnson's Baby</p> <p>10 Powder?</p> <p>11 A. I did nothing personally</p> <p>12 other than ask the -- the attorneys if</p> <p>13 there was anything else I needed in</p> <p>14 forming my opinion. In -- of production</p> <p>15 documents, if we're just referring to</p> <p>16 that.</p> <p>17 I have no access to</p> <p>18 production documents on my own or through</p> <p>19 the internet. And I know none of the</p> <p>20 other deposees.</p> <p>21 Q. Did you do a comparison of</p> <p>22 biologic plausibility across various</p> <p>23 brands of talcum powder products?</p> <p>24 A. I did not personally do any</p>
Page 275	Page 277
<p>1 clear that I would like to see</p> <p>2 documents that could go into my</p> <p>3 assessment of biological</p> <p>4 plausibility.</p> <p>5 BY MR. HEGARTY:</p> <p>6 Q. Would you like to see</p> <p>7 documents showing that there is no</p> <p>8 asbestos in talcum powder, in particular</p> <p>9 Johnson's Baby Powder?</p> <p>10 A. I will review any documents</p> <p>11 that are provided to me, if asked to</p> <p>12 review them.</p> <p>13 Q. Did you ask plaintiffs'</p> <p>14 counsel to provide you documents of</p> <p>15 testing showing no asbestos in Johnson's</p> <p>16 Baby Powder?</p> <p>17 A. Many of those -- of the</p> <p>18 documents that are in the product</p> <p>19 production document show that there are</p> <p>20 samples that do not contain asbestos, or</p> <p>21 I will say asbestiform or talc fibers.</p> <p>22 So there is information in there showing</p> <p>23 when there is -- it is present and</p> <p>24 information in there showing when it was</p>	<p>1 of that. However many of the documents</p> <p>2 and many of the studies including the</p> <p>3 Longo supplement did compare, for</p> <p>4 example, I think I misspoke when I said</p> <p>5 one of the places that Johnson & Johnson</p> <p>6 gets their talc is Korea. What I meant</p> <p>7 was China. I should have said Asia. So</p> <p>8 Korea is also a mine that provided, but</p> <p>9 not to Johnson & Johnson.</p> <p>10 MS. O'DELL: Hey, Mark,</p> <p>11 we've been going about an hour and</p> <p>12 15 minutes.</p> <p>13 MR. HEGARTY: Okay.</p> <p>14 MS. O'DELL: Can we take a</p> <p>15 break?</p> <p>16 MR. HEGARTY: Yeah.</p> <p>17 THE VIDEOGRAPHER: The time</p> <p>18 is 2:27 p.m. Off the record.</p> <p>19 (Short break.)</p> <p>20 THE VIDEOGRAPHER: We are</p> <p>21 back on the record. The time is</p> <p>22 2:45 p.m.</p> <p>23 BY MR. HEGARTY:</p> <p>24 Q. Doctor, if evidence was that</p>

70 (Pages 274 to 277)

Judith Zelikoff, Ph.D.

Page 278	Page 280
<p>1 there is no asbestos in Johnson's Baby 2 Powder, would that change your opinions 3 as to biological plausibility? 4 A. No, sir, it would not. 5 Q. Same question with regard to 6 heavy metals. If there were no heavy 7 metals in Johnson's Baby Powder, would 8 that change your opinions on biological 9 plausibility? 10 A. I looked at the entire 11 product and it would not -- it would not 12 change my opinion, as it exists 13 currently, with biological plausibility 14 that it would cause ovarian cancer 15 through -- through inflammation, is my 16 opinion. 17 Q. In looking at your heavy 18 metals section, beginning at Page 8 of 19 your report -- are you there? 20 A. I'm not. I had to put my 21 glasses on. Thank you. 22 Q. There are no studies that 23 have looked at the effects of these 24 metals in powder dusted on the perineum,</p>	<p>1 ludicrous actually. 2 Q. None of the studies that you 3 cite in your heavy metals section link 4 the exposures that you discussed to 5 ovarian cancer risk, correct? 6 THE WITNESS: I'm sorry. 7 This is not coming up. 8 (Whereupon, a discussion was 9 held off the stenographic record.) 10 THE WITNESS: They -- the 11 studies that I list for the 12 individual metals talk about the 13 potential inflammatory and 14 carcinogenic potential of those 15 particular metals. And based on 16 the Crowley report, there are, and 17 other production documents from 18 Johnson & Johnson, they list three 19 particular metals that are 20 associated with Johnson & Johnson 21 products, cobalt, nickel and 22 chromium. 23 BY MR. HEGARTY: 24 Q. That was not my question.</p>
Page 279	Page 281
<p>1 correct? 2 A. Your question is there are 3 no studies looking at these individual 4 metals? 5 Q. Correct? 6 A. Perineal studies in the 7 ovarian -- 8 Q. No, my question is, there 9 are no studies that looked at the effects 10 of these metals in powder dusted on the 11 perineum, correct? 12 A. I'm not sure I understand 13 your question. 14 Q. You don't cite any studies 15 that have looked at the effect of 16 applying these metals to the perineum, 17 correct? 18 A. To my knowledge, there are 19 no specific animal studies that show 20 nickel was applied to the perineal. 21 Q. There are no human studies 22 either, correct? 23 A. To my knowledge, there are 24 no human studies. That would be</p>	<p>1 My question is, none of the studies that 2 you cite -- 3 A. On the -- 4 Q. -- in your section on heavy 5 metals, evaluate ovarian carcinogenicity 6 potentials of these metals, correct? 7 MS. O'DELL: Object to the 8 form. 9 THE WITNESS: I do not talk 10 about ovarian cancer in particular 11 relation to these three metals 12 that I cited -- 13 BY MR. HEGARTY: 14 Q. No studies -- 15 A. -- in the report. 16 Q. -- that you cite refer to 17 risk of ovarian cancer with exposure to 18 these metals, correct? 19 A. With my charge being 20 biological plausibility, I thought that 21 it was my opinion -- my professional 22 opinion is that it was more important to 23 discuss the potential for inflammatory 24 responsiveness and carcinogenic</p>

71 (Pages 278 to 281)

Judith Zelikoff, Ph.D.

Page 282	Page 284
<p>1 potential.</p> <p>2 Q. Doctor, you don't cite any</p> <p>3 studies that look at -- look at the</p> <p>4 ovarian carcinogenicity potential of any</p> <p>5 of these metals, correct?</p> <p>6 MS. O'DELL: Object to form.</p> <p>7 THE WITNESS: Not in my</p> <p>8 report.</p> <p>9 BY MR. HEGARTY:</p> <p>10 Q. What are the exposure levels</p> <p>11 of these metals necessary to have</p> <p>12 biologic plausibility of ovarian cancer?</p> <p>13 A. As far as biological</p> <p>14 plausibility of these metals, these</p> <p>15 metals are -- unless there are particular</p> <p>16 standards for a particular metal, nothing</p> <p>17 is really established for what it would</p> <p>18 take for nickel to cause ovarian cancer.</p> <p>19 However, the ability of</p> <p>20 these metals to produce inflammation are</p> <p>21 very, very low levels. And if they</p> <p>22 produce inflammation, then they have the</p> <p>23 potential to go on to produce cancer.</p> <p>24 And many of these metals do.</p>	<p>1 them.</p> <p>2 Q. Did you find any?</p> <p>3 A. Again, the purpose of</p> <p>4 writing this section on heavy metals had</p> <p>5 to do with bringing out the inflammatory</p> <p>6 and the biological plausibility that in</p> <p>7 my mind is linked to talc and ovarian</p> <p>8 cancer.</p> <p>9 Q. Doctor, listen to my</p> <p>10 question. Did you find any studies</p> <p>11 reporting on a risk of ovarian cancer</p> <p>12 with exposure to any of those metals?</p> <p>13 MS. O'DELL: Objection to</p> <p>14 form.</p> <p>15 THE WITNESS: I found in</p> <p>16 cobalt, but it does not have to do</p> <p>17 with ovarian cancer, but I did</p> <p>18 find that the absorption of cobalt</p> <p>19 is much higher in women than in</p> <p>20 men. And that many of these</p> <p>21 studies show that you have</p> <p>22 increased proliferation. And as I</p> <p>23 said, mine was -- my question that</p> <p>24 I needed to address was biological</p>
Page 283	Page 285
<p>1 Q. Well, none of these studies</p> <p>2 report a threshold level of exposure to</p> <p>3 cobalt, chromium, or nickel to increase</p> <p>4 the risk of ovarian cancer, correct?</p> <p>5 MS. O'DELL: Object to the</p> <p>6 form.</p> <p>7 THE WITNESS: That was not</p> <p>8 the purpose of my writing.</p> <p>9 My -- my writing was to</p> <p>10 exemplify the carcinogenic</p> <p>11 potential and the inflammatory and</p> <p>12 some of the human health effects</p> <p>13 that are commonly seen. Ovarian</p> <p>14 cancer is not that common. And so</p> <p>15 it's not unusual that other --</p> <p>16 that ovarian cancer was not looked</p> <p>17 into in some of these studies.</p> <p>18 BY MR. HEGARTY:</p> <p>19 Q. Well, you found no studies</p> <p>20 looking at exposure to any of those</p> <p>21 metals and risk of ovarian cancer,</p> <p>22 correct?</p> <p>23 A. It's not that I didn't find</p> <p>24 any. I wasn't particularly looking for</p>	<p>1 plausibility.</p> <p>2 So I did find many of these</p> <p>3 factors, many of these metals, all</p> <p>4 of these metals have the potential</p> <p>5 to produce the changes that are in</p> <p>6 the carcinogenic process.</p> <p>7 BY MR. HEGARTY:</p> <p>8 Q. I'm going to ask the</p> <p>9 question one more time. And if we don't</p> <p>10 get an answer I'm going to call Judge</p> <p>11 Pisano.</p> <p>12 Cite for me, which study did</p> <p>13 you find that linked exposure to these</p> <p>14 metals to ovarian cancer?</p> <p>15 MS. O'DELL: Objection to</p> <p>16 the form.</p> <p>17 Dr. Zelikoff has answered</p> <p>18 your question multiple times.</p> <p>19 But you may answer it again.</p> <p>20 BY MR. HEGARTY:</p> <p>21 Q. Let me ask it differently.</p> <p>22 Did you find any studies reporting on a</p> <p>23 risk of ovarian cancer with exposure to</p> <p>24 any of these metals, that being cobalt,</p>

72 (Pages 282 to 285)

Judith Zelikoff, Ph.D.

Page 286	Page 288
<p>1 chromium, or nickel?</p> <p>2 A. I was not looking</p> <p>3 specifically for that. So, no, I did not</p> <p>4 find that.</p> <p>5 Q. Which of the studies that</p> <p>6 you report show that the exposure levels</p> <p>7 evaluated in those studies are in any way</p> <p>8 related to human exposure levels through</p> <p>9 Johnson's Baby Powder?</p> <p>10 MS. O'DELL: Object to the</p> <p>11 form.</p> <p>12 THE WITNESS: Are you</p> <p>13 talking about inhalation or</p> <p>14 perineal application?</p> <p>15 BY MR. HEGARTY:</p> <p>16 Q. Either method of exposure.</p> <p>17 A. So many of the inhalation</p> <p>18 numbers are concentrations, and looking</p> <p>19 at the Johnson & Johnson documents in</p> <p>20 terms of what is in the head and in the</p> <p>21 face area after diapering as well as</p> <p>22 during powdering, indicates that the</p> <p>23 concentrations that are possibly inhaled</p> <p>24 contain particles that can initiate a</p>	<p>1 of these metals in terms of parts</p> <p>2 per million, whatever talc reached</p> <p>3 there, there's -- there is a</p> <p>4 strong potential that that amount</p> <p>5 of the concentration of the metal</p> <p>6 would also reach the target organ.</p> <p>7 BY MR. HEGARTY:</p> <p>8 Q. That's not my question,</p> <p>9 Doctor.</p> <p>10 How much nickel, cobalt and</p> <p>11 chromium reached the ovary with a single</p> <p>12 application of Johnson's Baby Powder to</p> <p>13 the perineum?</p> <p>14 A. I don't have -- that</p> <p>15 information is not available.</p> <p>16 They did show in studies, in</p> <p>17 a few studies, I think it was the</p> <p>18 Hamilton study that -- or Henderson</p> <p>19 study -- that there -- talc indeed does</p> <p>20 reach the ovary from perineal application</p> <p>21 or from intravaginal application. And</p> <p>22 whatever is -- whatever the concentration</p> <p>23 is that reached the ovary, carried with</p> <p>24 it these -- one -- one or more or all of</p>
Page 287	Page 289
<p>1 response.</p> <p>2 Also, from looking at the</p> <p>3 Johnson & Johnson documents, many of</p> <p>4 those results indicate -- and I think we</p> <p>5 have an exhibit here of the table of the</p> <p>6 concentrations that were found.</p> <p>7 Well, it's not at my local</p> <p>8 fingertips here. But --</p> <p>9 MS. O'DELL: Are you looking</p> <p>10 for Exhibit C, Doctor, I think</p> <p>11 it's right there with -- on</p> <p>12 your -- on your paper clip.</p> <p>13 MR. HEGARTY: Let me</p> <p>14 withdraw the question.</p> <p>15 BY MR. HEGARTY:</p> <p>16 Q. Doctor, how much nickel,</p> <p>17 cobalt and chromium reach the ovary with</p> <p>18 one application of Johnson's Baby Powder</p> <p>19 to the perineum?</p> <p>20 MS. O'DELL: Object to the</p> <p>21 form.</p> <p>22 THE WITNESS: Since much of</p> <p>23 the -- since Johnson's Baby Powder</p> <p>24 has a high concentrations of some</p>	<p>1 these three metals.</p> <p>2 Q. You agree --</p> <p>3 A. So it was a similar</p> <p>4 concentration.</p> <p>5 Q. You agree that all of the</p> <p>6 metals you talk about are in -- are all</p> <p>7 around us, they are in food, correct?</p> <p>8 A. The metals nickel, chromium,</p> <p>9 cobalt can be in food, yes.</p> <p>10 Q. They are in the air,</p> <p>11 correct?</p> <p>12 A. They are in certain ambient</p> <p>13 environments.</p> <p>14 Q. These are metals that are</p> <p>15 considered ubiquitous, correct?</p> <p>16 MS. O'DELL: Objection to</p> <p>17 the form.</p> <p>18 THE WITNESS: They are --</p> <p>19 chromium not as much -- I'm sorry,</p> <p>20 cobalt not as much. But chromium</p> <p>21 and nickel, they are in the air,</p> <p>22 and depending upon the environment</p> <p>23 that is producing it, if you go to</p> <p>24 Sundre, Canada, you can have lots</p>

73 (Pages 286 to 289)

Judith Zelikoff, Ph.D.

Page 290	Page 292
<p>1 of nickel in the air. But if you 2 go to New York City, concentrate 3 as we've measured in my laboratory 4 prior to this deposition, or prior 5 to this case, my involvement in 6 this case, you will see very small 7 concentrations of nickel. There 8 should not be a lot in the air. 9 And we also measured 10 chromium, and it should not be -- 11 unless you have a polluted 12 environment there should not be a 13 lot of these metals in the air. 14 BY MR. HEGARTY: 15 Q. Is the metal are not -- the 16 metals that are in the air, nickel and 17 chromium, sufficient to have biologic 18 plausibility between those metals and 19 ovarian cancer? 20 A. Those -- those metals, yes, 21 the metals in the air can cause an 22 inflammatory response. The 23 concentrations of the metals in the air 24 can cause an inflammatory response and</p>	<p>1 Q. Did you do an analysis 2 yourself of Johnson's Baby Powder for the 3 presence of these heavy metals? 4 A. I did not do any 5 instrumentation studies measuring the 6 amount. I -- I relied on the documents. 7 Q. But you are capable of doing 8 that analysis, correct? 9 A. We are capable, in my 10 laboratory, along with colleagues, of 11 measuring by XRF, x-ray fluorescence, and 12 by ICP mass spec, measuring the amounts 13 of metals in tissues, correct. 14 Q. But you did not do that 15 testing here, correct? 16 A. My job was to define 17 biological plausibility based upon 18 literature, relevant literature and 19 documents, internal documents. 20 Q. Nowhere in your report do 21 you identify the exposure levels of any 22 of these metals that are necessary to 23 cause ovarian cancer, correct? 24 MS. O'DELL: Objection to</p>
Page 291	Page 293
<p>1 can start processes and change gene 2 expression within cells. 3 Q. Cite for me any study that 4 shows that inflammatory response has ever 5 occurred in the ovary. 6 MS. O'DELL: Objection to 7 form. 8 THE WITNESS: There are 9 granulomas that have been found in 10 animal studies of -- in the lung. 11 You are talking about in the 12 ovary, I understand that. 13 BY MR. HEGARTY: 14 Q. I'm talking about the 15 studies that have not looked at talc, but 16 have looked at cobalt, chromium -- 17 A. Okay. 18 Q. -- nickel and cobalt without 19 regard to talc, cite for me any studies 20 that have shown that those metals have 21 caused inflammation in the ovary? 22 A. By themselves, there are no 23 studies that demonstrate that, that I'm 24 aware of.</p>	<p>1 form. Asked and answered. 2 THE WITNESS: There is no 3 literature that says you need one 4 particle or ten particles. 5 The inflammatory response 6 that nickel causes is extremely 7 well established, even at very low 8 concentrations. And -- and the 9 same is true for hexavalent 10 chromium and for chromium, 11 trivalent chromium. 12 BY MR. HEGARTY: 13 Q. Are there any studies that 14 report on exposure of these metals to the 15 ovaries? 16 A. Are you talking about alone? 17 Q. Individually or together, 18 but the metals themselves. 19 A. Just the metals -- 20 MS. O'DELL: Object -- 21 objection to form. 22 THE WITNESS: These metals 23 by themselves have been tested 24 extensively in cells and in -- in</p>

74 (Pages 290 to 293)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 294</p> <p>1 animals to produce inflammation, 2 to change the epigenome of the 3 cells, to change gene expression. 4 And there was no -- there was no 5 reason to believe whether or not 6 there are specific studies 7 associated with the ovary. There 8 are no reason to believe that it 9 would not do the same effects in 10 cells as well as in the ovary, in 11 the lung, and the kidney and the 12 liver. 13 BY MR. HEGARTY: 14 Q. Doctor, you are not aware of 15 any studies that have looked at the 16 effects of these metals on human ovarian 17 cells, correct? 18 MS. O'DELL: Object to the 19 form. 20 THE WITNESS: Again, I'm not 21 an epidemiologist, so -- and I'm 22 not a clinical toxicologist. So I 23 will have to stand by the -- the 24 data that I do know in -- in</p>	<p style="text-align: right;">Page 296</p> <p>1 form. 2 THE WITNESS: The exposures 3 are similar, or can be similar. 4 But as I stated before, for 5 these metals as well as for 6 asbestiform fibers, all it takes 7 is a small amount, if not just one 8 fiber, to cause the response and 9 to start the process of 10 inflammation, gene expression, 11 upregulation of genes that are 12 associated with biological 13 mediators, proinflammatory 14 cytokines. 15 BY MR. HEGARTY: 16 Q. Yet you cite no study that 17 reports that response in human ovarian 18 cells, correct? 19 MS. O'DELL: Object to the 20 form. 21 THE WITNESS: I -- if you're 22 still talking about individual 23 metals, no. 24 But if you're talking about</p>
<p style="text-align: right;">Page 295</p> <p>1 extensive -- have extensive 2 knowledge of. And that's human ex 3 vivo and in vitro studies. And I 4 am not aware. 5 That is not to say that they 6 are not out there. And I 7 especially do not know about the 8 humans, because I focus as a 9 toxicologist. I'm an animal 10 toxicologist. 11 BY MR. HEGARTY: 12 Q. Did you do any comparison 13 between the doses of -- of the metals 14 reported in the studies that you cited to 15 those in women using talc? 16 A. I did no calculations on -- 17 on my own. 18 Q. Did you do any calculations 19 that tested these metals in animals to 20 determine what the -- that -- that they 21 relate in any way to the dose that a 22 human would experience through Johnson's 23 Baby Powder use? 24 MS. O'DELL: Objection to</p>	<p style="text-align: right;">Page 297</p> <p>1 in vitro studies like those of 2 Saed who looked for oxidative 3 stress and -- and prooxidant 4 changes, and if you are talking 5 about Shukla study who also looked 6 at ovarian cells, human ovarian 7 cells, and looked at changes in 8 gene expression associated with 9 oxidant production and reactive 10 oxygen species production, then 11 yes, in cell culture using human 12 ovarian epithelial cells, because 13 that's what we are talking about 14 here. 15 BY MR. HEGARTY: 16 Q. None of those studies 17 applied nickel to human ovarian cells, 18 did they? 19 A. No, they did not. 20 Q. None of those studies 21 applied cobalt to human ovarian cells, 22 correct? 23 A. No, they did not. 24 Q. None of those studies</p>

75 (Pages 294 to 297)

Judith Zelikoff, Ph.D.

Page 298	Page 300
<p>1 applied chromium to ovarian -- human 2 ovarian cells, correct? 3 A. Correct. But what we're 4 talk -- what I'm talking about and the 5 basis of my opinion is the product in its 6 entirety, not breaking it down to 7 individual constituents. 8 Q. Is it necessary for purposes 9 of your biologic plausibility opinion 10 that talc reach the ovary? 11 A. Not necessarily. 12 Talc does -- talc and any 13 other particle does not have to reach the 14 site of deposition. They can, and -- and 15 do, I believe that they not only migrate 16 to an area and they can get to an area 17 and then cause inflammation which then 18 can be -- the cytokines where there's 19 tumor necrosis factor, interleukin-1, or 20 any of the other proinflammatory 21 cytokines can then get to the air, the 22 site of this -- this target organ. 23 So you do not have to have, 24 in particle toxicology and in talc</p>	<p>1 target site, let's say in the case 2 of inhalation or in the case of 3 direct application to the perineal 4 area, you will have the process of 5 impacting with those cells and 6 generating cell mediated reactions 7 and immunological reactions and 8 inflammatory responses. 9 And those inflammatory 10 responses and those reactive 11 oxygen species, except for 12 hydrogen peroxide which can't 13 travel a far distance, can get 14 into -- can and do get into the 15 blood circulation and then can 16 reach distant organs. 17 BY MR. HEGARTY: 18 Q. Cite for me any published 19 authority that says that inflammation in 20 the lungs will cause inflammation in the 21 ovaries. 22 MS. O'DELL: Object to the 23 form. Misstates her testimony. 24 THE WITNESS: To that</p>
Page 299	Page 301
<p>1 toxicology, you do not have to have the 2 presence. Although, in early studies 3 they have found talc particles not only 4 in the ovary, but also in the lymph 5 node -- in the lymphatics that drain the 6 ovary. 7 Q. Cite for me any study that 8 has reported inflammation in the ovaries 9 from inflammation of -- due to a particle 10 in the lung -- strike that. 11 Is it your contention that 12 inflammation in the lung due to a 13 particle will cause inflammation in the 14 ovaries? 15 MS. O'DELL: Objection to 16 form. 17 THE WITNESS: I'm telling 18 you that -- 19 MS. O'DELL: Go ahead. 20 THE WITNESS: -- there's 21 biological plausibility to suggest 22 that. 23 When you have a particle 24 coming in and going to a local</p>	<p>1 specific question, no. But I 2 can -- I can cite you many studies 3 that show in terms of other 4 particles for the lungs that has 5 been shown to cause inflammation 6 in other areas. 7 For example, in the case of 8 Ghio and other investigators, you 9 will find inflammation not only in 10 the blood by the measurement of 11 cytokines in the blood, even 12 though the first target organ was 13 the -- was the lungs. 14 Also, if you look at 15 obesity, obesity is a pro-oxidant 16 state, and that can generate -- 17 the reason obesity causes other 18 health effects is because it's a 19 big mass of inflammation. And the 20 inflammation in that particular 21 site of all those fatty cells, 22 they can release inflammatory 23 mediators that go all over. And 24 that literature is out there.</p>

76 (Pages 298 to 301)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 302</p> <p>1 BY MR. HEGARTY: 2 Q. So is it your opinion for 3 purposes of your biological 4 plausibility -- strike that. 5 Is it -- is your biological 6 plausibility opinion that talc inhaled 7 and in the lungs causes inflammation in 8 the ovaries that can lead to ovarian 9 cancer? 10 A. There's plausibility for 11 that, yes. 12 Q. And can you cite for me any 13 published authority that says that talc 14 inhaled in the lungs will cause 15 inflammation in the ovaries that can lead 16 to ovarian cancer? 17 A. There's multiple parts of 18 that question. 19 Q. That's a very specific 20 question to that very specific subject 21 area. Can you cite to me any published 22 literature that says that? 23 MS. O'DELL: Would you mind 24 repeating the full question or</p>	<p style="text-align: right;">Page 304</p> <p>1 cadmium. 2 Q. So in other words a lot of 3 particles besides talc, according to you, 4 can cause inflammation of the lungs, 5 correct? 6 A. Many do. There are others 7 that do not, like titanium dioxide which 8 were used in many studies as a control. 9 Q. And those nanoparticles, 10 those air particles -- 11 A. In fact -- 12 Q. -- those diesel particles. 13 A. I'm sorry. 14 Q. Okay. And those 15 nanoparticles, those diesel particles, 16 air particles that can cause inflammation 17 in the lungs, will also cause 18 inflammation in the ovaries, correct? 19 MS. O'DELL: Objection to 20 form. 21 THE WITNESS: I said they 22 will cause inflammation 23 systemically. I did not indicate 24 the ovaries.</p>
<p style="text-align: right;">Page 303</p> <p>1 read it. 2 THE WITNESS: Any published 3 authority that says that -- that 4 says that talc inhaled in the 5 lungs will cause inflammation in 6 the ovaries that can lead to 7 ovarian cancer. 8 For that particular, and 9 that specific of a question, I 10 cannot cite you. 11 BY MR. HEGARTY: 12 Q. You have published 13 extensively on particulates in the air 14 causing inflammation in the lungs, 15 correct? 16 A. In the lungs and 17 systemically. 18 Q. And those particulates 19 include? 20 A. Air particulates; 21 particulate matter, called PM, ambient 22 PM; diesel exhaust particles. I'm also 23 going to go to my CV. Nanoparticles, 24 metal nanoparticles, specifically</p>	<p style="text-align: right;">Page 305</p> <p>1 BY MR. HEGARTY: 2 Q. Well, there's no -- there's 3 nothing unique about talc particles 4 versus the other particles you mentioned, 5 correct? 6 MS. O'DELL: Object to form. 7 THE WITNESS: Size, chemical 8 composition, they -- they -- 9 particles -- particles are -- they 10 can -- they can be different and 11 they can be the same. So many 12 studies use model particles to 13 look at a negative effect like in 14 the Shukla study where they used 15 titanium dioxide particles of a 16 similar size in their -- as a 17 control and got no gene expression 18 changes. 19 Particles in the air, if 20 you're looking at -- there are 21 many factors that go into how a 22 particle behaves, including size, 23 including composition, including 24 morphology.</p>

77 (Pages 302 to 305)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 306</p> <p>1 BY MR. HEGARTY: 2 Q. Well, by your methodology, 3 any particle inhaled that causes 4 inflammation in the lungs is biologically 5 plausible, can lead to ovarian cancer, 6 correct? 7 MS. O'DELL: Object to form. 8 THE WITNESS: No, it can -- 9 sorry. It can lead to 10 inflammation systemically. 11 BY MR. HEGARTY: 12 Q. That can lead to ovarian 13 cancer, correct? 14 A. Inflammation -- 15 MS. O'DELL: Object to the 16 form. 17 Go ahead. 18 THE WITNESS: Sorry. 19 MS. O'DELL: Sorry. 20 THE WITNESS: Inflammation 21 is responsible for -- in my 22 opinion, is the underlying 23 mechanism, a key underlying 24 mechanism for the association for</p>	<p style="text-align: right;">Page 308</p> <p>1 same inflammation that you believe that 2 talc does, correct? 3 A. Inflammation is 4 characterized by certain key components. 5 Inflammation -- whether it's an 6 inflammation in the ovary or an 7 inflammation in the lung or inflammation 8 in the kidney, inflammation is an immune 9 response. And it's going to involve key 10 cells, including the macrophage, the 11 neutrophil, the natural killer cell, all 12 of which can produce reactive oxygen 13 species -- well, primarily the 14 macrophages and neutrophils produce 15 oxygen radicals. 16 However, the natural killer 17 cell, they all produce cytokines, which 18 can produce inflammation. So 19 inflammation is characterized by the same 20 components. 21 Q. And you can't cite for me 22 any different components of the 23 inflammation caused by cadmium as you 24 believe the inflammation that is caused</p>
<p style="text-align: right;">Page 307</p> <p>1 ovarian cancer, yes. 2 BY MR. HEGARTY: 3 Q. And that mechanism can be 4 initiated by any particle inhaled into 5 the lungs, correct? 6 A. No, it's -- 7 MS. O'DELL: Objection to 8 form. 9 THE WITNESS: Sorry. 10 Well, as -- again, as I 11 stated, it depends on the -- it 12 depends on the particle. For 13 example, titanium dioxide will not 14 produce inflammation in the lungs. 15 However, other particles, many 16 other particles, including 17 cadmium, cadmium oxide particles 18 do cause inflammation, as well as 19 asbestos does, as well as talc has 20 been shown to. 21 They can all produce 22 inflammation or oxidative stress. 23 BY MR. HEGARTY: 24 Q. Cadmium particles induce the</p>	<p style="text-align: right;">Page 309</p> <p>1 by talc, correct? 2 A. When I measured inflammatory 3 responses to the inhalation of cadmium 4 nanoparticles, I looked for the standard 5 inflammatory markers. So I measured in 6 the lung and in the circulation. I 7 measured the percentages of neutrophils, 8 which is a key indicator, key criteria 9 for inflammation. I determined 10 macrophage numbers as well as function in 11 terms of their ability to phagocytose, in 12 their ability to produce reactive oxygen 13 species. And I looked for lung injury, 14 as measured by lactose, lactate 15 dehydrogenase. 16 So when one looks for 17 inflammation in the body, whether it's an 18 animal or a human, C-reactive protein, 19 you are going to be looking for all the 20 same markers. 21 Q. You identified, based on 22 your opinion, no difference in the 23 inflammation caused by talc and the 24 inflammation caused by cadmium, correct?</p>

78 (Pages 306 to 309)

Judith Zelikoff, Ph.D.

Page 310	Page 312
<p>1 A. I did not do talc inhalation 2 in my laboratory. The studies 3 indicate -- looked for the same thing. 4 They look for changes in gene expression 5 of activating transcription factors. 6 They did in the Shukla study. 7 They look for the percentage 8 of neutrophils. They look for macrophage 9 activation. We all look at the same 10 thing when coming to the conclusion of 11 inflammation. 12 Q. And according to you, talc 13 and cadmium act similarly with regard to 14 inducing inflammation in the lungs? 15 MS. O'DELL: Objection to 16 form. 17 THE WITNESS: Do they act 18 similarly? Well, I think I 19 answered that question. 20 Inflammation is -- is the -- 21 inflammation is modified by the 22 same components, the same soluble 23 factors, the same cell type 24 factors, including macrophages and</p>	<p>1 because I haven't investigated 2 that literature. 3 But inflammation -- 4 inflammation doesn't change. It 5 can get out of the particular 6 local organ. I don't think that 7 cadmium has been investigated in 8 terms of the ovary. It's 9 certainly been investigated in 10 terms of the kidney, which is 11 local -- which is systemically a 12 distant organ from the local 13 target, which is the lung. And it 14 can cause inflammation in the 15 kidney. 16 BY MR. HEGARTY: 17 Q. You haven't identified any 18 differences between the inflammation 19 caused by other particulates and the 20 inflammation caused by talc, correct? 21 MS. O'DELL: Objection to 22 form. 23 THE WITNESS: Inflammation 24 is inflammation.</p>
Page 311	Page 313
<p>1 neutrophils, dendritic cells, 2 whatever. So inflammation, 3 whether it's acute or chronic 4 inflammation used the same 5 parameters. 6 We call inflammation -- we 7 call inflammation when you -- in a 8 tissue or in organs when you see 9 these characteristics. And we say 10 these are markers indicative. 11 These are pathologies 12 indicative -- these are -- of an 13 inflammatory response. 14 BY MR. HEGARTY: 15 Q. So according to your 16 opinion, that's biologic plausibility 17 between cadmium exposure and ovarian 18 cancer? 19 MS. O'DELL: Objection to 20 form. 21 THE WITNESS: I would have 22 to do more research on that to be 23 able to say that. I would not say 24 biological plausibility, only</p>	<p>1 BY MR. HEGARTY: 2 Q. You referred to fragrances. 3 A. I'm sorry. Could you give 4 me a page? 5 Q. Over on Page 12. You cite 6 to a single study that discusses what 7 exposure levels of these fragrances have 8 been shown to induce a biologically 9 plausible effect in the ovary. 10 MS. O'DELL: Object to the 11 form. 12 THE WITNESS: Many of these 13 fragrances, many of these 14 chemicals within a specific 15 fragrance, it can consist of maybe 16 150 or even more chemicals within 17 any one given fragrance. Many of 18 them have been shown to cause 19 inflammation. 20 BY MR. HEGARTY: 21 Q. Have any of the chemicals in 22 the fragrances that you looked at been 23 reported in the medical literature to 24 induce inflammation in the ovaries?</p>

79 (Pages 310 to 313)

Judith Zelikoff, Ph.D.

Page 314	Page 316
<p>1 A. No one specifically -- to my 2 knowledge, no one specifically looked at 3 inflammation in the ovaries. But again, 4 if you go back to the idea of 5 inflammation being caused by a particle 6 at a local site and then having the 7 potential -- or having the capacity I 8 should say, to -- to have that 9 inflammation go to a distant -- a more 10 distant site. 11 So the fact that no one has 12 looked at it does not delete the fact 13 that certainly inflammation can get to 14 distant sites, including the ovary. 15 Q. Well, what is the dose of 16 nickel or -- and cobalt and chromium 17 individually that must -- that the woman 18 must be exposed to in vivo to induce 19 inflammation in the ovaries? 20 MS. O'DELL: Object to the 21 form. Asked and answered. 22 THE WITNESS: There are -- 23 as I said, there's really -- one 24 particle, one piece can start the</p>	<p>1 metals, but there's also -- if you look 2 at nickel and it's a micronutrient, so 3 you can have very, very, very tiny 4 amounts in the body -- very tiny. And it 5 can be used as a micronutrient. 6 You can have lead, but that 7 should not be in the body at all. And 8 there is no safe level of lead. So 9 despite what the regulatory agencies say, 10 there is no safe level which is what 11 their conclusion is moving towards. 12 And -- so a metal is not a 13 metal is not a metal. 14 Now, when you look at these 15 three metals, so for example you have 16 nickel which is classified as a 1A 17 carcinogen, but -- 18 Q. I'll withdraw the question. 19 You're not -- Doctor, you're not 20 answering my question. 21 MS. O'DELL: She is 22 answering your question. 23 MR. HEGARTY: No, she is 24 not.</p>
Page 315	Page 317
<p>1 process for inflammation. 2 BY MR. HEGARTY: 3 Q. So it -- 4 A. It could be one. 5 Q. -- it's your opinion that 6 one particle of nickel will induce 7 inflammation in the ovaries? 8 MS. O'DELL: Objection. 9 BY MR. HEGARTY: 10 Q. Is that correct? 11 A. Will? I can't -- I haven't 12 gone through the literature, but could, 13 certainly. 14 Q. And what literature can you 15 cite that would say that one particle of 16 nickel could cause inflammation in the 17 ovary? 18 A. It's my professional 19 judgment being an expert toxicologist in 20 the area of metals. 21 Q. Okay. Same question as to 22 cobalt and chromium. 23 A. Well, metals can't be lumped 24 together like that. Metals are indeed</p>	<p>1 MS. O'DELL: Yes, she is. 2 And if you don't -- let her 3 finish. 4 MR. HEGARTY: Okay. 5 We'll -- we'll call Judge Pisano 6 and he'll see if we're asking the 7 question -- if she's answering the 8 question. 9 MS. O'DELL: Are you 10 threatening the witness by saying 11 that? 12 MR. HEGARTY: No, I'm 13 talking to you. We'll go off the 14 record -- 15 MS. O'DELL: You're 16 threatening the witness and -- no, 17 we're not going off the record. 18 MR. HEGARTY: Go off the 19 record, let's go off the record. 20 MS. O'DELL: No, we are not 21 going off the record. 22 MR. HEGARTY: Yes, let's go 23 off the record. 24 MS. O'DELL: If she's</p>

80 (Pages 314 to 317)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 318</p> <p>1 answering your question, she --</p> <p>2 she gets the right to finish her</p> <p>3 answer. You don't cut her off,</p> <p>4 Mark.</p> <p>5 MR. HEGARTY: Let's go off</p> <p>6 the record.</p> <p>7 MS. O'DELL: No, we're not</p> <p>8 going off the record. She's</p> <p>9 finishing her answer.</p> <p>10 MR. HEGARTY: Let's go off</p> <p>11 the record. I'm not --</p> <p>12 MS. O'DELL: And then you</p> <p>13 can ask her another question.</p> <p>14 MR. HEGARTY: Let's go off</p> <p>15 the record. It's my deposition.</p> <p>16 MS. O'DELL: No. It's your</p> <p>17 deposition, but it's not fair to</p> <p>18 mistreat this witness if she is</p> <p>19 answering your question.</p> <p>20 MR. HEGARTY: I'm not</p> <p>21 mistreating the witness.</p> <p>22 MS. O'DELL: Yes, you are.</p> <p>23 MR. HEGARTY: We'll go off</p> <p>24 the record and call Judge Pisano.</p>	<p style="text-align: right;">Page 320</p> <p>1 either inhaled or applied to the perineum</p> <p>2 will induce inflammation in the ovaries?</p> <p>3 A. It's my opinion that it</p> <p>4 could.</p> <p>5 Q. What literature do you have</p> <p>6 to support that opinion?</p> <p>7 A. My professional opinion as a</p> <p>8 toxicologist in metals with over</p> <p>9 30 years.</p> <p>10 Q. Next question. Is it your</p> <p>11 opinion that one particle of cobalt,</p> <p>12 either inhaled or applied to the</p> <p>13 perineum, will induce inflammation in the</p> <p>14 ovaries?</p> <p>15 A. Again, it's my opinion that</p> <p>16 it -- it could. It has the biological</p> <p>17 plausibility to, because inflammation,</p> <p>18 although not as toxic in many ways as</p> <p>19 it's classified as a 2B -- 2B by IARC</p> <p>20 is -- has the potential -- does cause</p> <p>21 inflammation, and that inflammation can</p> <p>22 leave the site of the target site.</p> <p>23 Q. What authority do you have</p> <p>24 for that opinion?</p>
<p style="text-align: right;">Page 319</p> <p>1 MS. O'DELL: You are</p> <p>2 mistreating the witness by not</p> <p>3 allowing her to finish her --</p> <p>4 MR. HEGARTY: I withdrew the</p> <p>5 question.</p> <p>6 MS. O'DELL: Well, okay.</p> <p>7 The with -- the question was</p> <p>8 withdrawn. Ask a question, let</p> <p>9 her --</p> <p>10 MR. HEGARTY: No, we're off</p> <p>11 the record. We're going to call</p> <p>12 Judge Pisano.</p> <p>13 MS. O'DELL: Okay. Great.</p> <p>14 THE VIDEOGRAPHER: Off the</p> <p>15 record. The time is 3:21 p.m.</p> <p>16 Off the record.</p> <p>17 (Whereupon, a discussion was</p> <p>18 held off the record.)</p> <p>19 THE VIDEOGRAPHER: We are</p> <p>20 back on the record. The time is</p> <p>21 3:23 p.m.</p> <p>22 BY MR. HEGARTY:</p> <p>23 Q. Dr. Zelikoff, is it your</p> <p>24 opinion that one particle of nickel</p>	<p style="text-align: right;">Page 321</p> <p>1 A. My professional opinion.</p> <p>2 Q. Is it your opinion that one</p> <p>3 particle of chromium, either inhaled or</p> <p>4 applied to the perineum, will induce</p> <p>5 inflammation in the ovaries?</p> <p>6 MS. O'DELL: Objection to</p> <p>7 the form.</p> <p>8 THE WITNESS: It depends on</p> <p>9 the form of the chromium.</p> <p>10 BY MR. HEGARTY:</p> <p>11 Q. What form of chromium does</p> <p>12 it need to be?</p> <p>13 A. A trivalent chromium</p> <p>14 which -- I'm sorry, hexavalent chromium</p> <p>15 which will then get into the cell, start</p> <p>16 the process and -- and convert to</p> <p>17 chromium-3, 4 and 5.</p> <p>18 Q. That's chromium-6, correct?</p> <p>19 A. Hexavalent chromium is</p> <p>20 chromium-6, right.</p> <p>21 Q. Is it your opinion that one</p> <p>22 particle of chromium-6, either inhaled or</p> <p>23 applied to the perineum, will induce</p> <p>24 inflammation in the ovaries?</p>

81 (Pages 318 to 321)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 322</p> <p>1 MS. O'DELL: Objection to 2 form. 3 THE WITNESS: It could, 4 because inflammation again could 5 leave the target site. And it 6 depends on the form of the metal. 7 So we have soluble metals -- 8 I don't want to go on too long. 9 You have soluble metals and 10 insoluble metals. Some of them 11 are more toxic and more -- and 12 potentially more carcinogenic than 13 other forms. There are many salts 14 within those metals that you gave. 15 BY MR. HEGARTY: 16 Q. And what authority do you 17 have for the statement that one particle 18 of chromium, either inhaled or applied to 19 the perineum, will induce inflammation in 20 the ovaries? 21 A. My professional judgment. 22 Q. Will one particle of the 23 fragrance of the chemicals that you list 24 from the fragrances, either inhaled or</p>	<p style="text-align: right;">Page 324</p> <p>1 lumped. And particles oftentimes, 2 if they're different in size, if 3 they're different in chemical 4 structure, if they have iron or 5 don't have iron, you have -- you 6 may have differences. 7 BY MR. HEGARTY: 8 Q. Will one particle from 9 diesel exhaust, inhaled or applied to the 10 perineum, cause inflammation in the 11 ovary? 12 MS. O'DELL: Object to the 13 form. 14 THE WITNESS: Again, same 15 answer, it could. Depends on the 16 particle size, the particle type, 17 the particle morphology. And it 18 has the potential to induce 19 inflammation as shown in cells. 20 And can produce an oxidant state. 21 BY MR. HEGARTY: 22 Q. Doesn't inflammation just 23 reflect the body's normal response to the 24 presence of the particles?</p>
<p style="text-align: right;">Page 323</p> <p>1 applied to the perineum, cause 2 inflammation to the ovaries? 3 MS. O'DELL: Objection to 4 the form. 5 THE WITNESS: If -- I -- I 6 don't have the knowledge, I don't 7 have the literature knowledge to 8 answer that question. 9 BY MR. HEGARTY: 10 Q. Will one -- will one 11 particle of -- of cadmium, either inhaled 12 or applied to the perineum, cause 13 inflammation in the ovaries? 14 A. It can cause -- 15 MS. O'DELL: Objection to 16 form. You can answer. 17 THE WITNESS: It can cause 18 inflammation in the area if it's 19 inhaled in the lung and that 20 inflammation can get out 21 systemically. 22 Now it depends, again, on 23 the size of the particle. Metals, 24 as I said before, cannot be</p>	<p style="text-align: right;">Page 325</p> <p>1 A. There are two -- there are 2 two forms of -- well, there are multiple 3 forms of inflammation. But the two that 4 are of concern and in -- in response to 5 your question, is that they are acute 6 inflammation and there is chronic 7 inflammation. 8 And with acute inflammation, 9 the first response to a foreign -- a 10 foreign particle or an antigen on a 11 bacterial cell or an infectious agent, is 12 for the body to mount an immune response. 13 How it does that is through 14 the same cell types that I just 15 mentioned. Polymorphonucleocytes, also 16 known as neutrophil. Macrophages, and 17 those are the two key players, but 18 natural killer cells all come into it. 19 That involves the innate 20 immune system. And so the first thing to 21 protect the body, whether it's a viral 22 infection or whether it's a bacterial 23 infection or whether it's a foreign 24 particle, is to mount that kind of immune</p>

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 326</p> <p>1 response to kill or negatively impact 2 that particular particle. 3 That will then -- that's an 4 innate immune response being active. 5 That will then, in some cases, upregulate 6 the T-cell and -- and humoral or -- and 7 cell-mediated immune response. 8 Now, that is, in terms of 9 cancers and in terms of tumors, that is 10 called immunosurveillance and that's the 11 first thing. And you're absolutely 12 right. The purpose of the immune system 13 is to protect the body. That is the 14 function. 15 However, there are three 16 stages or three types of processes for 17 the immune system in carcinogenesis. The 18 second being immuno equilibrium. But the 19 part that is the last part is that the 20 tumor can actually quiet or cause 21 immunosenescence of the immune system. 22 So in a chronic 23 inflammation, it does not always act in 24 the best interest of the -- of the host</p>	<p style="text-align: right;">Page 328</p> <p>1 inflammation. Not that they involve 2 different cell types or different 3 mechanisms. But they are called, in 4 terms of timing or temporality, acute 5 which will kill whatever right away and 6 then chronic which unfortunately keeps 7 playing back on itself and the 8 inflammation will continue. 9 Q. Granulomas which you just 10 mentioned don't cause cancer, correct? 11 A. Granulomas do not -- I'm 12 sorry. 13 Q. Granulomas which you just 14 mentioned don't cause cancer, correct? 15 A. Granulomas are in response 16 to a foreign body. In the case of 17 asbestos or in the case of another type 18 of fiber, macrophage will come over and 19 their normal process in what we call 20 innate immunity is to engulf the fiber. 21 And unfortunately, many times the fiber 22 cannot be engulfable or the particle 23 cannot be engulfable. 24 And so many macrophage will</p>
<p style="text-align: right;">Page 327</p> <p>1 but in the best interest of the tumor. 2 So your -- the answer to 3 your question is yes, that's the function 4 of it. But it can behave, it's a 5 two-prong sword. 6 Q. You said there are multiple 7 types of inflammation and you listed two 8 types: Acute and chronic. Are there any 9 other types besides those two? 10 A. Well, you have the reactions 11 to those inflammation in terms of having 12 a foreign body reaction. That is part of 13 an inflammatory response. So in terms of 14 temporality or timing, inflammation is 15 acute and is chronic. 16 What occurs during that 17 time, such as a foreign body reaction 18 where macrophages all come together and 19 engulf the particle or the fiber and try 20 to keep it within a localized space, that 21 is a process that can occur within 22 inflammation. 23 So my answer to you is that 24 there are two major types of</p>	<p style="text-align: right;">Page 329</p> <p>1 come over, and they will try to engulf it 2 as a body. And that is called a 3 granulomatous reaction. 4 And that's what happens 5 during tuberculosis when the organism 6 forms, many macrophages come over to kill 7 the organism, but it can't, and so they 8 form granulomas. 9 Q. Doctor, listen to my 10 question. I didn't ask you what a 11 granuloma was. I asked you, granulomas 12 don't cause cancer, correct? 13 MS. O'DELL: Object to form. 14 THE WITNESS: There is no 15 literature to my knowledge that 16 shows a granuloma, meaning immune 17 response, forming macrophages 18 engulfing, can cause cancer. 19 BY MR. HEGARTY: 20 Q. And a reaction to 21 inflammation can include the development 22 of fibrosis or scar tissue, correct? 23 A. That is a long-term chronic 24 response associated with chronic</p>

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 330</p> <p>1 inflammation. 2 Q. And there's no literature 3 linking fibrosis to cancer, correct? 4 MS. O'DELL: Object to the 5 form. 6 THE WITNESS: My 7 professional opinion is that there 8 is literature -- let me just read 9 over the question, please. 10 So fibrosis is produced by 11 release of factors from the 12 macrophage. And it causes 13 scarring within that particular 14 target organ. 15 Now, whether or not that -- 16 those -- that scarring can 17 actually make that site more 18 vulnerable to cancer, like in the 19 case of hepatitis, where you get 20 scarring, and you get cancer as a 21 result of that particular 22 fibrosis, but they are two 23 different diseases. 24 But whether the area of</p>	<p style="text-align: right;">Page 332</p> <p>1 A. Fibrosis does not morph or 2 turn into cancer. That is correct. 3 Q. In Section 12 -- I'm sorry. 4 On Page 12, under your section 5 "exposure," talc particle access to the 6 body. 7 Do you see that section? 8 A. Is this Paragraph 1, 2, or 9 3? 10 Q. Well, I'm looking just at 11 the Section Number 4 right now. 12 A. Yes. Okay. Section Number 13 6 is on Page 12. 14 Q. Section 6. I'm sorry. I 15 had those transposed. 16 A. And please repeat your 17 question. 18 Q. You never -- prior to being 19 contacted by counsel for plaintiffs, you 20 never looked at the studies reporting on 21 whether talc can reach the ovaries via 22 inhalation or perineal application, 23 correct? 24 A. I did not study the</p>
<p style="text-align: right;">Page 331</p> <p>1 fibrosis creates a more vulnerable 2 tissue base that can -- that can 3 progress or go to cancer is a 4 question that there is some 5 examples of, but -- in the liver 6 in particular. 7 BY MR. HEGARTY: 8 Q. Well, there's no literature 9 reporting an increased risk of cancer in 10 any organ because there's fibrosis in 11 that organ, correct? 12 A. What I'm saying is that in 13 terms of the liver and in terms of 14 fibrosis, let's say from ethanol or 15 acetaminophen ingestion, you get fibrosis 16 which is a whole disease or symptomology 17 by itself, and then you have cancer, 18 which is another disease. But what I'm 19 saying is that in the area where the 20 injury and the fibrosis occurs, in the 21 liver there is a higher risk of getting 22 cancer. 23 Q. Fibrosis doesn't morph or 24 turn into cancer?</p>	<p style="text-align: right;">Page 333</p> <p>1 literature or review the literature prior 2 to being contacted. But I studied it and 3 reviewed it extensively after being 4 contacted. 5 Q. On Page 12 of the last 6 paragraph -- I'm sorry -- second-to-last 7 paragraph, which begins, "A common 8 exposure route." 9 Do you see that paragraph? 10 A. I do. Thank you. 11 Q. You write, "Again, a common 12 exposure route for cosmetic talc is via 13 the dermal route including vaginally 14 after perineal application." 15 A. Yes. 16 Q. Is it your testimony that 17 there's biologic plausibility with talc 18 applied to the skin? 19 A. Applied to the skin, talc 20 does not -- is not absorbed into the skin 21 or through the skin, although there is 22 some question as to whether if there's 23 injury or scratch or openings in the 24 skin, whether the talc can penetrate.</p>

84 (Pages 330 to 333)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 334</p> <p>1 But in and of itself talc cannot 2 penetrate through the skin. 3 However, we're not -- when 4 we're talking about perineal or vaginal 5 application, you are not talking about an 6 epidermal subcutaneous keratinized skin. 7 Q. None of the studies that you 8 cite in this paragraph researched 9 particle transport through the 10 reproductive tract through perineal 11 application, correct? 12 MS. O'DELL: Object to the 13 form. 14 THE WITNESS: These -- it is 15 extremely technically difficult, 16 from my knowledge as an animal 17 toxicologist, to do perineal 18 application to a mouse. 19 BY MR. HEGARTY: 20 Q. I'm going to withdraw the 21 question. Doctor, you will not respond 22 to my question. My question is simply, 23 none of the studies that you cite in this 24 paragraph researched particle transport</p>	<p style="text-align: right;">Page 336</p> <p>1 the form. 2 BY MR. HEGARTY: 3 Q. Correct? 4 MS. O'DELL: Excuse me. You 5 may answer his question any way 6 you'd want to, Doctor. 7 THE WITNESS: None of these 8 that I have stated on Page 12 9 refer to perineal exposure in the 10 second paragraph in terms of 11 Venter, Iturralde, Sjosten and 12 Heller. 13 However, on Page -- on Page 14 13, there is a study by Keskin, 15 who used rats and did a vaginal or 16 perineum to talc. 17 BY MR. HEGARTY: 18 Q. I'm going to move to strike. 19 We're going to go off the record. 20 MR. HEGARTY: We're going to 21 call Judge Pisano. There's no 22 reason to add that additional part 23 to the answer to that question. 24 And I'm not -- I'm tired of that</p>
<p style="text-align: right;">Page 335</p> <p>1 through the reproductive tract through 2 perineal application. That's correct? 3 A. There is a study, and I'm 4 afraid the name of the author does not 5 come to me. So allow me to look at my 6 report. 7 Q. And I'm just talking about 8 the authorities that you cite in the 9 second paragraph beginning, "A common 10 exposure route." 11 MS. O'DELL: Feel free to 12 look at your report if you need 13 to, Doctor. 14 THE WITNESS: I understand. 15 On Page 13, animal models -- 16 BY MR. HEGARTY: 17 Q. Doctor, that's not my 18 question. My question is in the 19 paragraph that I referenced beginning a 20 common exposure route, none of those 21 authorities looked at transport of the 22 particles via application of those 23 particles to the perineum? 24 MS. O'DELL: Objection to</p>	<p style="text-align: right;">Page 337</p> <p>1 happening. So we'll call him 2 unless you're going to talk to the 3 witness. 4 MS. O'DELL: Is your 5 objection she didn't answer your 6 question? Because she -- you 7 asked her about the paragraph. 8 She said "no; however" -- 9 MR. HEGARTY: We're off the 10 record. 11 MS. O'DELL: No, we're not 12 off the record. 13 MR. HEGARTY: We're off the 14 record. 15 MS. O'DELL: No, we -- 16 MR. HEGARTY: We're going 17 off the record. 18 MR. LOCKE: We are off. Let 19 me throw out something. We've got 20 seven hours. I think there's a 21 plan here to stall, and we need to 22 do a better job of keeping things 23 moving, or we are going to have to 24 ask the court for more time.</p>

85 (Pages 334 to 337)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 338</p> <p>1 MR. HEGARTY: Let's go off 2 the record. 3 MS. O'DELL: The suggestion 4 that there's -- let me just -- 5 before we go off the record, the 6 suggestion that there's somehow a 7 plan to -- is incorrect, and 8 improper. So if you want to go 9 off the record, I think you've got 10 an answer to your question, which 11 was, "No, not in the paragraph." 12 However, she has a right to 13 point to evidence in her report. 14 That's perfectly appropriate. 15 MR. HEGARTY: We'll let 16 Judge Pisano decide. We'll go off 17 the record. 18 THE VIDEOGRAPHER: The time 19 is 3:39 p.m. Going off the 20 record. 21 (Short break.) 22 THE VIDEOGRAPHER: The time 23 is 4:04 p.m. Back on the record. 24 MR. HEGARTY: We're back on</p>	<p style="text-align: right;">Page 340</p> <p>1 have looked at transport of dry powder 2 talc to the perineum showing that the -- 3 that talc transports to the ovaries, 4 correct? 5 MS. O'DELL: Object to the 6 form. 7 THE WITNESS: When we say -- 8 when you say talc, you're 9 referring to talcum powder 10 products? 11 BY MR. HEGARTY: 12 Q. Correct, correct. 13 A. That's correct to my 14 knowledge. 15 Q. And are you aware that talc 16 is in toilet paper? 17 A. Yes, I just learned that 18 recently. 19 Q. Can talc in toilet paper 20 migrate to the ovaries? 21 MS. O'DELL: Object to the 22 form. 23 THE WITNESS: Can -- my 24 knowledge is that talc in toilet</p>
<p style="text-align: right;">Page 339</p> <p>1 the record and we're going to 2 continue without calling Judge 3 Pisano at this time. But we do 4 reserve the right to ask Judge 5 Pisano for more time based on our 6 belief that Dr. Zelikoff has many 7 occasions over the course of this 8 deposition not been responsive to 9 the questions asked and as a 10 result has -- has wasted the 11 defendant's time and to our 12 prejudice. 13 So -- but we're going to go 14 forward and see if we can finish 15 this deposition. 16 MS. O'DELL: Plaintiffs will 17 obviously oppose that -- that 18 motion. Dr. Zelikoff has been 19 responsive to your questions. 20 BY MR. HEGARTY: 21 Q. Dr. Zelikoff, we're talking 22 about the section on talc particle's 23 access to the body. There have been no 24 studies in either animals or humans that</p>	<p style="text-align: right;">Page 341</p> <p>1 paper is -- is bound to the 2 other -- the other components 3 there. So unless it becomes 4 bioavailable it cannot migrate 5 from the toilet paper. 6 BY MR. HEGARTY: 7 Q. How about talc -- talc in 8 soap, is there talc in soaps? 9 A. To my knowledge there is. 10 Q. Can talc in soaps, if 11 applied to the perineum, migrate to the 12 ovaries? 13 A. If it becomes -- 14 MS. O'DELL: Object to form. 15 THE WITNESS: If it becomes 16 bioavailable. Likely bound up to 17 the other components. 18 BY MR. HEGARTY: 19 Q. When you say bioavailable, 20 what do you mean? 21 A. To me, "bioavailable" means 22 that the body can see it, and it 23 becomes -- it becomes -- it has access to 24 biological responsiveness.</p>

86 (Pages 338 to 341)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 342</p> <p>1 Q. And do you know a 2 Dr. Benjamin Neel at NY University -- New 3 York University? 4 A. Dr. Neel, isn't he the head 5 of the cancer center? 6 Q. He is. 7 A. He is the head of the cancer 8 center. 9 Q. Do you know him? 10 A. I do not know him. 11 Q. Does he know more about 12 cancer biology than you do? 13 MS. O'DELL: Object to the 14 form. 15 THE WITNESS: I've not seen 16 his CV. I would assume as head of 17 the cancer center, that he 18 probably does. Since that is not 19 my area of study. 20 BY MR. HEGARTY: 21 Q. Are dose-response 22 relationships important in evaluating 23 potential carcinogenicity of a substance? 24 A. Dose-response --</p>	<p style="text-align: right;">Page 344</p> <p>1 Q. You need a specific page? 2 Over on Page 16. Over the course of this 3 page and carrying over to the next page, 4 you cite a number of studies that refer 5 to talc causing pleural inflammation, 6 correct? 7 A. Yes. 8 Q. Talc causing granulomas, 9 correct? 10 A. Yes. 11 Q. Talc causing pulmonary 12 interstitial fibrosis, correct? 13 A. Talcum powder can do those 14 things, yes. 15 Q. And talc causing 16 carcinogenic activity in the lungs, 17 correct? 18 A. Are you referring to a 19 specific line? 20 Q. No, I'm not referring to a 21 specific line. I'm talking about 22 generally from this part of your report. 23 A. In general, this is the 24 section on inhalation. I'm talking</p>
<p style="text-align: right;">Page 343</p> <p>1 dose-responses are -- contribute to, as I 2 said frequency, duration, exposure route. 3 They all contribute to carcinogenicity. 4 Q. In other words, in 5 evaluating the carcinogenicity of a 6 substance, it's important to look at dose 7 relationships, correct? 8 A. Are you speaking about 9 dose-response, or more than one dose? 10 Q. Let me ask it again. In 11 evaluating the substance for 12 carcinogenicity purposes, it's important 13 to look at dose-response relationships, 14 correct? 15 A. It's important to look at 16 dose-response relationships, but it's not 17 the only factor, is what I'm saying. 18 Q. In your report, you cite a 19 number of reactions to talc that have 20 been reported, pleural inflammation, 21 granulomas, pulmonary 22 interstitial fibrosis -- 23 A. What page are you referring 24 to?</p>	<p style="text-align: right;">Page 345</p> <p>1 about -- yes, I'm talking about talcum 2 powder and its ability to bring about 3 changes in the lungs that could lead to 4 carcinogenic -- carcinogenesis. 5 Q. Of the reactions that we 6 just talked about, have any of those been 7 reported in women using talc on the 8 perineum? 9 A. There have been no studies 10 to my knowledge showing that application 11 of perineal talc can produce -- produces 12 lesions in the lungs. 13 Q. And there's been no studies 14 that you are -- of which you are aware 15 that have reported findings of granulomas 16 in women using talc in the perineum, 17 correct? 18 A. There is evidence of 19 inflammation clearly, but there -- to my 20 knowledge, I have not seen any of the 21 literature which shows a granuloma in the 22 ovary. 23 Q. What studies have you seen 24 that have reported seeing inflammation in</p>

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 346</p> <p>1 the ovaries of women using talc on the 2 perineum? 3 MS. O'DELL: Object to the 4 form. 5 THE WITNESS: I'm just 6 trying to find the section. 7 There were many studies, I 8 can't right now, without finding 9 it in my report, identify any one 10 in particular. 11 BY MR. HEGARTY: 12 Q. Well, sitting here today, 13 can you cite any study that has reported 14 on finding inflammation of the ovaries 15 following perineal application of talc? 16 A. As I said, there are many -- 17 there are many examples in animal models 18 that was not perineal, that was vaginal, 19 as you stated. 20 There were studies -- 21 study -- an early study which identified 22 talcum powder particles in the ovary with 23 inflammatory responsiveness or 24 inflammatory responses. That was a</p>	<p style="text-align: right;">Page 348</p> <p>1 disease. 2 Q. Okay. Rheumatoid arthritis 3 does not increase the risk of cancer, 4 correct? 5 A. Rheumatoid arthritis, for 6 what's known now, does not increase the 7 risk of cancer. 8 Q. Psoriasis is another chronic 9 inflammatory process, correct? 10 A. Another autoimmune disease 11 and another inflammatory process, yes. 12 Q. Having psoriasis does not 13 increase the risk of any form of cancer, 14 correct? 15 A. Not that -- not that we know 16 with the current knowledge. 17 Q. So just having chronic 18 inflammation does not mean cancer will 19 develop, correct? 20 MS. O'DELL: Object to the 21 form. 22 THE WITNESS: Just having 23 chronic inflammation does not have 24 to indicate. It's one -- again,</p>
<p style="text-align: right;">Page 347</p> <p>1 very -- that was a very early study. I'm 2 not sure if it was Hamilton or Henderson. 3 If I may. 4 I'm sorry it's not coming to 5 mind now. 6 Q. Okay. Over on Page 20 you 7 discuss the role of the immune system -- 8 A. Yes, sir. 9 Q. -- correct? 10 A. I see that, yes. 11 Q. You agree that it's not 12 generally accepted by the medical or 13 scientific communities that all cancers 14 are caused by chronic inflammation, 15 correct? 16 A. There are other mechanisms 17 that are associated with carcinogenesis 18 and the process of carcinogenesis. If 19 you'd like, I can identify those. 20 Q. You agree that there are 21 types of chronic inflammation that are 22 not related to cancer. Rheumatoid 23 arthritis is one, correct? 24 A. That's an autoimmune</p>	<p style="text-align: right;">Page 349</p> <p>1 it's one mechanism that provides 2 biological plausibility for the 3 cancer induction. 4 If I may give an example. 5 BY MR. HEGARTY: 6 Q. Well, let me -- that's not 7 what I asked you for. 8 A. Okay. I thought I answered 9 your question. 10 Q. Does having pelvic 11 inflammatory disease cause ovarian 12 cancer? 13 A. The inflammation has been 14 linked with ovarian cancer, yes. 15 Q. In your opinion is there a 16 biologically plausible mechanism between 17 PID and ovarian cancer? 18 A. Well, PID is usually 19 associated with an infection. And what's 20 related to cancer and why there's higher 21 risk in inflammatory diseases of 22 endometriosis and pelvic inflammatory 23 disease is through a mechanism of 24 inflammation.</p>

88 (Pages 346 to 349)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 350</p> <p>1 Q. Your biologically plausible 2 mechanism for talc and ovarian cancer is 3 inflammation, correct? 4 A. That's primary, yes. 5 Q. You make reference to MUC-1. 6 That's not your biological plausibility 7 mechanism, is it? 8 A. You mean MUC-1 -- 9 Q. Yes. 10 A. -- antibodies? 11 Q. Correct? 12 A. MUC-1, if I may explain it, 13 is mucin. And -- 14 Q. I don't want to interrupt. 15 I'm not after an explanation. I just 16 wanted to know whether it's part -- 17 whether the references you include in 18 your report to MUC-1 are included in your 19 biologically plausible opinion? 20 A. It is included in my -- in 21 reaching my opinion, yes. 22 Q. Is that a separate mechanism 23 from inflammation? 24 A. It is a separate mechanism</p>	<p style="text-align: right;">Page 352</p> <p>1 A. It's -- the only evidence 2 out there that addresses this is when 3 they do correlation studies with the 4 level of antibodies to MUC-1. And when 5 the antibody levels are decreased, then 6 you have -- they found that you have an 7 increased risk of ovarian cancer. 8 Q. There are no studies 9 reporting or correlating MUC-1 levels in 10 talcum powder users to ovarian cancer 11 risk, correct? 12 MS. O'DELL: Object to form. 13 THE WITNESS: Not to my 14 knowledge. 15 MS. O'DELL: Sorry. 16 BY MR. HEGARTY: 17 Q. And measuring MUC-1 is not 18 used to diagnose ovarian cancer, correct? 19 A. MUC-1 is also known as 20 CA-125, and it is used as a marker. 21 Q. My question is, is MUC-1 22 used to -- levels -- strike that. 23 Are MUC-1 levels used to 24 diagnose a woman with ovarian cancer?</p>
<p style="text-align: right;">Page 351</p> <p>1 from inflammation. It's seen in ovarian 2 cancer as a marker. And when you have -- 3 evidence has shown that if you have 4 antibodies to MUC-1, and if they're 5 decreased as is seen in response to talc, 6 that you will have less of an immune 7 response and protection. 8 Q. Can you cite for me any 9 study that has correlated MUC-1 levels 10 with ovarian cancer risk? 11 MS. O'DELL: Object to form. 12 THE WITNESS: They use it as 13 a marker. The literature uses 14 MUC-1 as a marker of cancer. Can 15 I cite you any studies that links 16 it with ovarian cancer? No, I 17 cannot. 18 BY MR. HEGARTY: 19 Q. Are there any studies that 20 link the levels of MUC-1 to ovarian 21 cancer risk? 22 A. Do you mean human studies or 23 animal? 24 Q. Yes, human studies only.</p>	<p style="text-align: right;">Page 353</p> <p>1 A. My response to that is MUC-1 2 is synonymous with CA-125. CA-125 is a 3 shed marker in the blood associated with 4 ovarian cancer, so yes. 5 Q. Okay. Is it your testimony 6 that for purposes of -- strike that. 7 Is it your testimony that 8 CA-125 levels are used to diagnose 9 ovarian cancer? 10 MS. O'DELL: Object to the 11 form. 12 THE WITNESS: I'm saying 13 that CA-125 is used as a 14 biological marker of progression, 15 extent, and intensity and whether 16 ovarian cancer is present. 17 BY MR. HEGARTY: 18 Q. My question is, in a woman 19 who comes in complaining of symptoms that 20 might be ovarian cancer, is CA-125 used 21 to diagnose ovarian cancer? 22 A. I'm sorry, I'm not a 23 physician. I can't answer that question 24 in terms of what -- what an OB/GYN or an</p>

89 (Pages 350 to 353)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 354</p> <p>1 oncologist would do. 2 Q. And measuring CA-125 levels 3 does not give you any evidence of the 4 etiology of the ovarian cancer, correct? 5 A. Not to the etiology. 6 However, it is an epithelial-associated 7 protein. 8 So if we are talking about 9 epithelial, and we are talking about 10 epithelial ovary carcinoma, it is related 11 to -- to that. 12 Q. Does all types -- do all 13 types of inflammation irreparably damage 14 tissue? 15 A. Irreparably. Do you mean 16 persistently without -- is there 17 recovery? 18 Q. No, my question is do all 19 types of inflammation, all acute, all 20 chronic inflammation, damage tissue where 21 it's not repaired? 22 A. Where it's not repaired? 23 Q. Yes. 24 A. No, you can have -- with</p>	<p style="text-align: right;">Page 356</p> <p>1 the systematic review of the 2 literature as I have. But each 3 doctor, I'm sure, makes their own 4 opinion. 5 BY MR. HEGARTY: 6 Q. Can you cite any doctor who 7 treats ovarian cancer or researches 8 ovarian cancer who believes that the 9 biological plausible mechanism of ovarian 10 cancer is inflammation? 11 A. I have not spoken to any 12 doctors in that regard. 13 Q. What does the inflammation 14 in the ovary look like in your opinion 15 from talc exposure? 16 A. It looks like any other 17 local target of inflammation, in that 18 there are neutrophils, immune cells that 19 migrate into the area. There are 20 macrophages that migrate into the area. 21 There can be higher levels of cytokines 22 like interleukin and chemotactic factor, 23 growth factor. 24 Q. Such inflammation, if it was</p>
<p style="text-align: right;">Page 355</p> <p>1 acute inflammation, of course you can 2 have repair of -- it's there to protect 3 against the invader. 4 Q. Does having inflammation in 5 one organ or one tissue in the body 6 always mean that other tissues in the 7 body will be inflamed? 8 A. It does not always mean 9 that. 10 Q. The medical community has 11 not generally accepted that chronic 12 inflammation is a cause of ovarian 13 cancer, correct? 14 MS. O'DELL: Objection to 15 form. 16 THE WITNESS: Again, I'm not 17 quite sure what you mean by 18 generally accepted. Everyone 19 has -- every medical community has 20 its own opinion. I'm sure there 21 are many doctors who do embrace 22 it. And I'm sure there are many 23 doctors who do not. I'm not sure 24 whether they've done the extent of</p>	<p style="text-align: right;">Page 357</p> <p>1 occurring would be visible, correct? 2 A. Not necessarily. In a -- in 3 a chronic -- first of all, you can get 4 different time periods. So 5 inflammation -- if it's chronic 6 inflammation you are talking about one 7 thing. And then you might see some 8 remnants of the inflammation. 9 But if you look at a period 10 of time, you can miss the inflammatory 11 response. It can be there, impact the 12 cells and then be gone. 13 Q. Even with chronic 14 inflammation? 15 A. With chronic inflammation, 16 if you looked hard enough you would find 17 the remnants of its presence and you will 18 also likely find neutrophilic 19 infiltration. 20 Q. Has that -- 21 A. That does not last forever. 22 Q. Has that ever -- that -- 23 those findings ever been reported in 24 women using talc in the perineum?</p>

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 358</p> <p>1 A. The inflammatory response?</p> <p>2 Q. Correct.</p> <p>3 A. Or the infiltration? Not</p> <p>4 that I'm aware of. Not in my report.</p> <p>5 Q. How many applications of</p> <p>6 talc to the perineum does it take to</p> <p>7 cause chronic inflammation in the</p> <p>8 ovaries?</p> <p>9 A. That's -- that</p> <p>10 information -- that is not known how many</p> <p>11 applications, whether it could be one or</p> <p>12 it needs to be over a period of three</p> <p>13 years or a period of ten years. Some of</p> <p>14 the meta-analysis evaluations indicated</p> <p>15 that there were some temporal</p> <p>16 associations with it, and that it needed</p> <p>17 to be used longer than ten years, where</p> <p>18 you saw responsiveness. And others</p> <p>19 indicated less than ten years.</p> <p>20 So it's -- it's difficult to</p> <p>21 say, and it's also associated with the</p> <p>22 woman.</p> <p>23 Q. Does acute inflammation</p> <p>24 cause cancer?</p>	<p style="text-align: right;">Page 360</p> <p>1 Q. None of those inflammatory</p> <p>2 markers are tested to diagnose or monitor</p> <p>3 a woman for developing ovarian cancer,</p> <p>4 correct?</p> <p>5 A. To my knowledge, tumor</p> <p>6 necrosis factors, C-reactive protein,</p> <p>7 none of the interleukins are monitored.</p> <p>8 But again, I have to say</p> <p>9 that I'm not an OB/GYN and so I'm not --</p> <p>10 I'm not familiar with what their -- what</p> <p>11 they are using other than what's in the</p> <p>12 literature.</p> <p>13 Q. And no study has clinically</p> <p>14 correlated those markers with ovarian</p> <p>15 cancer or ovarian cancer risk, correct?</p> <p>16 MS. O'DELL: Objection to</p> <p>17 form.</p> <p>18 THE WITNESS: In looking at</p> <p>19 biological plausibility, which</p> <p>20 I'm -- which I'm focused on, the</p> <p>21 indication of those elevated</p> <p>22 levels as well as decreased levels</p> <p>23 of antioxidants are associated</p> <p>24 with inflammation and are</p>
<p style="text-align: right;">Page 359</p> <p>1 A. Acute inflammation has not</p> <p>2 been linked to my knowledge to cancer.</p> <p>3 As I said, it's used as an immune</p> <p>4 surveillance and protective mechanism as</p> <p>5 you pointed out.</p> <p>6 Q. Over on Pages 20 and 21 of</p> <p>7 your report you refer to CRP and other</p> <p>8 inflammatory markers, cytokines,</p> <p>9 inflammatory mediators. Do you see the</p> <p>10 section I'm referring to?</p> <p>11 A. I -- roles of the immune</p> <p>12 system, and then Section E, ovarian</p> <p>13 cancer inflammation?</p> <p>14 Q. Correct.</p> <p>15 A. Which section are you</p> <p>16 referring to?</p> <p>17 Q. Well, the section ovarian</p> <p>18 cancer inflammation at the bottom of</p> <p>19 Page 20, carrying over to the top of</p> <p>20 Page 21.</p> <p>21 A. I see that.</p> <p>22 Q. And there you talk about a</p> <p>23 number of inflammatory markers, correct?</p> <p>24 A. Correct.</p>	<p style="text-align: right;">Page 361</p> <p>1 associated with ovarian cancer.</p> <p>2 BY MR. HEGARTY:</p> <p>3 Q. Well, can you cite for me</p> <p>4 any study that has clinically correlated</p> <p>5 those findings to ovarian cancer risk?</p> <p>6 MS. O'DELL: Objection.</p> <p>7 Asked and answered.</p> <p>8 THE WITNESS: First of all,</p> <p>9 I'm not -- and again, not an</p> <p>10 OB/GYN.</p> <p>11 I can tell you that those</p> <p>12 risk factors, which are</p> <p>13 inflammatory markers, are used as</p> <p>14 an indicator of inflammation as a</p> <p>15 biological plausible mechanism.</p> <p>16 BY MR. HEGARTY:</p> <p>17 Q. Well, do you cite in your</p> <p>18 paper any studies that have --</p> <p>19 A. I'm sorry, do you mean the</p> <p>20 report?</p> <p>21 Q. In your report. Do you cite</p> <p>22 in your report any studies that have</p> <p>23 found that women with these markers have</p> <p>24 a higher -- higher or an increased risk</p>

91 (Pages 358 to 361)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 362</p> <p>1 of ovarian cancer?</p> <p>2 A. Well, what I -- no. But</p> <p>3 what I have found is that in women who</p> <p>4 have ovarian cancer, when they measure</p> <p>5 concurrently or subsequently, that the</p> <p>6 levels of certain inflammatory markers</p> <p>7 are elevated.</p> <p>8 Q. My question was specific to</p> <p>9 women prior to being diagnosed with</p> <p>10 ovarian cancer, has any study shown that</p> <p>11 women with higher levels of these</p> <p>12 inflammatory markers have an increased</p> <p>13 risk of ovarian cancer?</p> <p>14 MS. O'DELL: Objection to</p> <p>15 form.</p> <p>16 THE WITNESS: Not in that</p> <p>17 particular context. But again I'm</p> <p>18 not an OB/GYN.</p> <p>19 BY MR. HEGARTY:</p> <p>20 Q. Has any study shown that</p> <p>21 these inflammatory factors are elevated</p> <p>22 in women using talc on the perineum?</p> <p>23 MS. O'DELL: Objection to</p> <p>24 the form.</p>	<p style="text-align: right;">Page 364</p> <p>1 are a normal product of cell activity,</p> <p>2 correct?</p> <p>3 A. That is correct --</p> <p>4 Q. For example, for many --</p> <p>5 A. -- for many cells.</p> <p>6 Q. -- reactive oxygen species</p> <p>7 increase if we exercise, correct?</p> <p>8 A. As well as antioxidants</p> <p>9 increase, yes.</p> <p>10 Q. The same is true for</p> <p>11 reactive nitrogen species, correct?</p> <p>12 A. Yes.</p> <p>13 Q. These --</p> <p>14 A. It's a matter of degree.</p> <p>15 Q. Reactive oxygen species and</p> <p>16 reactive nitrogen species increase if</p> <p>17 we're under stress, correct?</p> <p>18 A. They have been shown to do</p> <p>19 that, yes.</p> <p>20 Q. And the body has defense</p> <p>21 mechanisms to handle this increase in</p> <p>22 reactive oxygen species and reactive</p> <p>23 nitrogen species, correct?</p> <p>24 MS. O'DELL: Objection to</p>
<p style="text-align: right;">Page 363</p> <p>1 THE WITNESS: It's not a</p> <p>2 common thing to measure</p> <p>3 inflammatory mediators as a result</p> <p>4 of the common use of talcum powder</p> <p>5 products. So there is no</p> <p>6 indication of that because there</p> <p>7 are no studies of that.</p> <p>8 BY MR. HEGARTY:</p> <p>9 Q. If you look over on Page 24</p> <p>10 of your report under the section Role of</p> <p>11 Oxidants in Ovarian Cancer. Do you see</p> <p>12 that section?</p> <p>13 A. Section C on Page 24?</p> <p>14 Q. Correct.</p> <p>15 A. Yes.</p> <p>16 Q. All the processes that you</p> <p>17 describe in this section occur in</p> <p>18 everyone everyday, correct?</p> <p>19 MS. O'DELL: Object to the</p> <p>20 form.</p> <p>21 THE WITNESS: To a degree,</p> <p>22 yes.</p> <p>23 BY MR. HEGARTY:</p> <p>24 Q. The reactive oxygen species</p>	<p style="text-align: right;">Page 365</p> <p>1 form.</p> <p>2 THE WITNESS: The body has</p> <p>3 antioxidant mechanisms, including</p> <p>4 superoxide dismutase, catalase, et</p> <p>5 cetera, that are -- that elevate</p> <p>6 in response to reactive oxygen</p> <p>7 species. But they can be</p> <p>8 overwhelmed by the amount of ROS</p> <p>9 release.</p> <p>10 BY MR. HEGARTY:</p> <p>11 Q. But it would be improper to</p> <p>12 say that simply by the generation of</p> <p>13 reactive oxygen species or reactive</p> <p>14 nitrogen species, DNA mutations and tumor</p> <p>15 development will occur, correct?</p> <p>16 MS. O'DELL: Object to form.</p> <p>17 THE WITNESS: One couldn't</p> <p>18 say that just by the -- as you</p> <p>19 point out, as the normal -- under</p> <p>20 normal circumstances, endogenously</p> <p>21 within the body, and not in</p> <p>22 response to a particular agent</p> <p>23 does produce these. So one cannot</p> <p>24 say, to answer your question, that</p>

Judith Zelikoff, Ph.D.

Page 366	Page 368
<p>1 it -- just the presence of</p> <p>2 reactive oxygen species will lead</p> <p>3 to cancer.</p> <p>4 BY MR. HEGARTY:</p> <p>5 Q. What data shows that the</p> <p>6 body's response system to reactive oxygen</p> <p>7 species and reactive nitrogen species is</p> <p>8 unable to handle those species that might</p> <p>9 be generated by talc exposure?</p> <p>10 A. Numerous cell studies and</p> <p>11 numerous animal studies. And you would</p> <p>12 look at that by the level of antioxidants</p> <p>13 that are also present. And if a</p> <p>14 substance such as talcum powder product</p> <p>15 reduces antioxidants, then the cell or</p> <p>16 the tissue is going to be overwhelmed by</p> <p>17 that product.</p> <p>18 Q. Has that process ever been</p> <p>19 shown in vivo?</p> <p>20 A. In a -- I'm not sure if this</p> <p>21 answers your question. I'll do my best</p> <p>22 to answer it. And your question was has</p> <p>23 that process, meaning the process of</p> <p>24 antioxidant change -- is that your</p>	<p>1 of the literature comes from in vivo</p> <p>2 animal studies as well as in vitro cell</p> <p>3 studies. But my role is to -- is to look</p> <p>4 at biological plausibility. And so</p> <p>5 studies that reveal or indicate that</p> <p>6 response in an animal model and in cell</p> <p>7 culture indicates to me that there's no</p> <p>8 likely reason why it could not happen in</p> <p>9 women.</p> <p>10 Q. Okay. At the top of Page 25</p> <p>11 of your report, you say that even a</p> <p>12 single dose of a carcinogen can produce</p> <p>13 effects that are adverse to cells and</p> <p>14 tissue at the site of exposure.</p> <p>15 Do you see where I'm</p> <p>16 reading?</p> <p>17 A. Yes.</p> <p>18 Q. When you say dose, do you</p> <p>19 mean exposure at a dose or volume of</p> <p>20 exposure to a substance that studies have</p> <p>21 proven are adverse to cells and tissues?</p> <p>22 MS. O'DELL: Object to the</p> <p>23 form.</p> <p>24 THE WITNESS: That's a</p>
Page 367	Page 369
<p>1 question?</p> <p>2 Q. No. The process where the</p> <p>3 cell or the tissue is going to be</p> <p>4 overwhelmed, has that process ever been</p> <p>5 shown in vivo in women?</p> <p>6 A. In women?</p> <p>7 Q. Yes.</p> <p>8 MS. O'DELL: Object to the</p> <p>9 form. You can answer.</p> <p>10 THE WITNESS: Certainly in</p> <p>11 animals, but not to my knowledge</p> <p>12 in women.</p> <p>13 I'm sorry. I'm still</p> <p>14 thinking.</p> <p>15 Whenever the antioxidant</p> <p>16 levels are decreased, that is an</p> <p>17 indicator of being overwhelmed by</p> <p>18 the reactive oxygen species or the</p> <p>19 oxidation stress.</p> <p>20 BY MR. HEGARTY:</p> <p>21 Q. And what studies have shown</p> <p>22 the antioxidant levels are decreased in</p> <p>23 women using talc?</p> <p>24 A. In women using talc -- most</p>	<p>1 multiple question. But when I</p> <p>2 refer to even a single dose, I</p> <p>3 mean even a single exposure.</p> <p>4 BY MR. HEGARTY:</p> <p>5 Q. Are you saying there a</p> <p>6 single molecule of the substance?</p> <p>7 A. What I meant in this report</p> <p>8 is even a single exposure. The</p> <p>9 concentration of which could be unknown.</p> <p>10 A single exposure to a certain</p> <p>11 concentration, whatever that</p> <p>12 concentration is, can produce effects.</p> <p>13 I'm not saying can produce cancer. What</p> <p>14 I'm saying is can start the process of</p> <p>15 either inflammation or oxidative stress.</p> <p>16 Q. And to what tissue does that</p> <p>17 single dose need to reach to have the</p> <p>18 adverse effects that you describe there?</p> <p>19 MS. O'DELL: Object to the</p> <p>20 form.</p> <p>21 THE WITNESS: Whatever that</p> <p>22 particular -- it depends upon the</p> <p>23 carcinogen or the inflammagogue</p> <p>24 that one is looking at in terms of</p>

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 370</p> <p>1 a single exposure. And it depends 2 on the susceptibility of the 3 tissue. So to answer your 4 question, doses or concentration 5 to the target tissue is unknown or 6 open. 7 BY MR. HEGARTY: 8 Q. You're not saying that a 9 single application of talc to the 10 perineum can produce effects that are 11 adverse to cells and tissue in the 12 ovaries, correct? 13 MS. O'DELL: Object to the 14 form. 15 THE WITNESS: I'm not saying 16 that it can't. I think I 17 testified earlier that a single -- 18 depending upon what that product 19 is -- in this case we're talking 20 about talcum powder product -- 21 that one exposure, one 22 application, one perineal direct 23 exposure could in fact trigger the 24 cells to start a process leaning</p>	<p style="text-align: right;">Page 372</p> <p>1 A. In women? 2 Q. Yes. 3 A. I can -- I cannot off the 4 top of my head or looking at my report 5 tell you that. Again, I just want to 6 repeat that my charge was to look at 7 biological plausibility and I -- I see 8 those effects or processes that you're 9 indicating in cells and animal models, 10 but I do not have that information with 11 humans. 12 Q. Are you aware of any study 13 correlating the exposures used in those 14 cell and animal models to the exposures 15 that women would experience with perineal 16 application of talc? 17 MS. O'DELL: Object to the 18 form. 19 THE WITNESS: Well, in my 20 mind, and in reality, women use 21 different amounts, whether it's 22 different handfuls. So I can't 23 really give you a concentration. 24 But there are studies, the in</p>
<p style="text-align: right;">Page 371</p> <p>1 towards inflammation. 2 BY MR. HEGARTY: 3 Q. And where the talc -- where 4 does the talc need to go in the body to 5 trigger that mechanism? 6 A. Well, once it gets -- once 7 it's applied to the perineal region, it's 8 my belief that it then migrates up to 9 the -- to the vaginal area. And in the 10 vaginal area, it could also start 11 mechanisms, gene expression changes in 12 the vaginal tissues that could lead to 13 inflammation, or it could get to the 14 point of the cervix or to the fallopian 15 tubes. It causes changes in cells, 16 whether it's gene expression or an 17 inflammation, at any one of those 18 upward -- upward reproductive tract organ 19 systems or tissues. They're all made up 20 of cells that are susceptible to oxidant 21 stress. 22 Q. Can you cite to us any study 23 that has shown that process in women 24 using talc to the perineum?</p>	<p style="text-align: right;">Page 373</p> <p>1 vitro studies, that did use more. 2 However, when you're looking 3 at toxicology and you're looking 4 to define a mechanism or a 5 potential mechanism, if you use 6 even a higher dose, you're 7 still -- you still can elicit the 8 same mechanism. 9 So perineal application -- 10 to answer your question, perineal 11 application can put a lot or a 12 little. But it also depends on 13 the frequency and the duration of 14 the use. 15 BY MR. HEGARTY: 16 Q. Doctor, my question, though, 17 was, has any study correlated the 18 exposures in the animal or cell studies 19 to which you are referring to, to show 20 that those same exposures are occurring 21 in women applying talc to the perineum? 22 A. No. 23 Q. For purposes of your 24 opinions on biological plausibility, do</p>

Judith Zelikoff, Ph.D.

Page 374	Page 376
<p>1 you rely on the studies that you cite in 2 your report done by Dr. Saed? 3 A. I relied on the information 4 from Dr. Saed. It went into making up my 5 opinion, yes. 6 Q. If those studies were not 7 available to you, would your opinions 8 still be the same? 9 A. As I said, one of the -- one 10 of the manuscripts came after my report. 11 And it was -- I looked at an abstract, so 12 I had information. And other -- others 13 of Dr. Saed's I reviewed. But I would 14 have come to the same conclusion. That 15 was just -- that was supplemental and 16 complementary and compelling. 17 Q. Have you ever cited an 18 abstract in any published article of 19 yours? 20 A. Yes, I have. 21 Q. Are you an expert in the 22 kinds of testing that Dr. Saed has 23 reported in the materials you reviewed? 24 A. Yes, I am.</p>	<p>1 just? 2 BY MR. HEGARTY: 3 Q. Ovarian epithelial -- thank 4 you. 5 Have you ever done studies 6 using any type of ovarian epithelial cell 7 lines? 8 A. I have not. 9 Q. Have you ever done any study 10 using ovarian cancer cell lines? 11 A. I have not. Not personally. 12 Q. What data shows that the 13 doses that Dr. Saed used in his studies 14 are comparable to those to which 15 epithelial ovarian cells would be exposed 16 to via perineal application of talc? 17 MS. O'DELL: Objection to 18 form. 19 THE WITNESS: There was no 20 comparison in his study directly. 21 But if I may, I just want to say, 22 when you're looking at biological 23 plausibility, which was the 24 question that I was asked,</p>
Page 375	Page 377
<p>1 Q. Do you understand that 2 Dr. Saed is an expert for the plaintiffs 3 in this litigation? 4 A. I do understand that from 5 looking at his publication. 6 Q. Did you do anything yourself 7 to verify the reliability of the testing 8 that he performed whose results you have 9 read in his publications? 10 A. I focused my review and 11 reading of the study design, which is -- 12 and the experimental approach, which are 13 key factors for evaluating any study. 14 And I agree with the experimental 15 approach and the study design that he 16 used. 17 He used proper controls. He 18 used a dose-response. He used the proper 19 techniques in analyzing for cell 20 survivability as well as for oxidative 21 stress and gene expression changes. 22 Q. Have you ever done studies 23 using epithelial cell lines? 24 MS. O'DELL: Ovarian or</p>	<p>1 oftentimes higher doses in vitro 2 studies are used to provide a 3 mechanism or a plausibility or 4 feasibility that that can -- that 5 that product, in this case, talcum 6 powder product, can induce 7 inflammation, inflammatory 8 responses and changes in 9 antioxidant levels. 10 So it is not uncommon to use 11 higher doses in in vitro studies 12 than what might be seen in a human 13 for biological plausibility 14 studies. 15 BY MR. HEGARTY: 16 Q. Can you cite any study that 17 has shown the results reported in 18 Dr. Saed's studies in vivo in women using 19 talc? 20 MS. O'DELL: Objection to 21 form. 22 THE WITNESS: May I get 23 Dr. Saed's paper? 24 BY MR. HEGARTY:</p>

95 (Pages 374 to 377)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 378</p> <p>1 Q. Well, I'm actually not 2 asking about Dr. Saed's paper. 3 A. Okay. 4 Q. But my question is -- you've 5 read Dr. Saed's papers, correct? 6 A. Yes, I have. 7 Q. Can you cite for me any 8 study that has shown the results he 9 reports in his studies in women using 10 talc? 11 MS. O'DELL: Object to form. 12 THE WITNESS: His studies 13 were in vitro studies. 14 BY MR. HEGARTY: 15 Q. Are there any such studies 16 looking at the effects in vivo of talc? 17 MS. O'DELL: Objection. 18 THE WITNESS: In vivo in 19 humans or in vivo in animals? 20 BY MR. HEGARTY: 21 Q. In humans. 22 MS. O'DELL: Object to the 23 form. 24 THE WITNESS: When you refer</p>	<p style="text-align: right;">Page 380</p> <p>1 polymorphisms? 2 A. I need to look at my CV 3 again, as being co-investigator. I've 4 worked with other people. I have not 5 performed studies looking at single 6 nucleotide polymorphisms. But I have 7 worked with people who have -- have done 8 them. And if I look at my curriculum 9 vitae, I can tell you if I've been on any 10 publications. 11 Q. Okay. Because of time, just 12 sitting here today, recognizing for the 13 record you haven't looked at your CV, do 14 any such studies come to mind? 15 A. I don't -- I have not done 16 those studies in my own laboratory. 17 Although I'm -- I'm just saying that I 18 may have been on a publication where 19 colleagues of mine have used that -- that 20 method, those methods. 21 Q. Do you have an opinion about 22 talc in single nucleotide polymorphisms 23 or SNPs? 24 MS. O'DELL: Objection.</p>
<p style="text-align: right;">Page 379</p> <p>1 to such studies, can you tell me 2 which studies -- which types of 3 studies again are you referring 4 to? 5 BY MR. HEGARTY: 6 Q. The cell studies that you 7 reference by Dr. Saed on Page 25 of your 8 report. 9 A. And the question is are 10 there any? 11 Q. Studies in humans showing 12 such effects following application of 13 talc to the perineum. 14 MS. O'DELL: Objection to 15 form. 16 THE WITNESS: Not to my 17 knowledge. 18 Excuse me. You said that 19 was on Page 25 that you were 20 referring to? 21 BY MR. HEGARTY: 22 Q. Correct. 23 Have you ever published a 24 paper discussing single nucleotide</p>	<p style="text-align: right;">Page 381</p> <p>1 THE WITNESS: I think 2 there -- there is literature 3 showing, including in Dr. Saed's 4 papers, that there are single -- 5 and in -- in a paper that looked 6 at women and looked at antioxidant 7 enzymes and they showed there was 8 single nucleotide polymorphism 9 changes in those women. 10 Looking at, I think it was 11 glutathione S-transferase M 1. 12 So what is my -- so if your 13 question is what is my opinion on 14 single nucleotide polymorphisms in 15 ovarian cancer? 16 BY MR. HEGARTY: 17 Q. Well, let me ask a different 18 question. Is your biologic mechanism -- 19 I'm sorry. Is your biologic plausibility 20 opinion between talc and ovarian cancer 21 the process or action that Dr. Saed 22 describes in his studies? 23 A. I believe that it could be 24 adding to the -- the plausibility of the</p>

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 382</p> <p>1 relationship or of the causation between 2 ovarian cancer and talcum powder 3 products. 4 Q. Well, is it your opinion 5 that the mechanism by which talc can be 6 biologically -- be a biological plausible 7 cause of ovarian cancer, that's cited by 8 Dr. Saed in his cell studies? 9 MS. O'DELL: Objection to 10 form. 11 THE WITNESS: I believe 12 that -- in my opinion and what I'm 13 stating here in the report, is 14 that inflammation is the 15 primary -- one of the primary 16 biological mechanisms. 17 Whether it appears from the 18 literature that single nucleotide 19 polymorphisms may, in fact, play a 20 role. 21 BY MR. HEGARTY: 22 Q. Okay. But is -- is that -- 23 is it your opinion that -- not that they 24 play -- just that they play a role, but</p>	<p style="text-align: right;">Page 384</p> <p>1 topic. I'll introduce the topic each 2 time that I ask you a question. 3 Going back to the Canadian 4 health assessment that you provided to us 5 at the beginning of the day. 6 A. Yes. 7 (Brief interruption.) 8 BY MR. HEGARTY: 9 Q. Doctor, we talked earlier 10 about Canada's health assessment with 11 regard to talc. Are you familiar with 12 the process by which the Canadian 13 authorities do that health assessment? 14 A. I am -- only from what is in 15 the document. 16 Q. Have you ever been a part of 17 that, of a Canadian health assessment 18 like the one shown with talc? 19 A. I've worked with Health 20 Canada. 21 Q. Okay. Have you ever worked 22 with Health Canada on doing a health 23 assessment like that reflected in the 24 document we looked at earlier today?</p>
<p style="text-align: right;">Page 383</p> <p>1 that is the mechanism for biologic 2 plausibility between talc and ovarian 3 cancer? 4 A. I -- I do not believe it 5 is -- it is not my opinion that -- it is 6 my opinion that single nucleotide 7 polymorphisms, along with inflammation 8 and -- and perhaps other mechanisms may 9 be involved that talc is associated with. 10 I focused my -- my opinion 11 on the assessment of inflammation and its 12 role. 13 MR. HEGARTY: Off the record 14 for a minute. 15 THE VIDEOGRAPHER: The time 16 is 4:48 p.m. We are off the 17 record. 18 (Short break.) 19 THE VIDEOGRAPHER: We are 20 back on the record. The time is 21 5:08 p.m. 22 BY MR. HEGARTY: 23 Q. Dr. Zelikoff, I'm going to 24 jump around a little bit from topic to</p>	<p style="text-align: right;">Page 385</p> <p>1 A. No, I have not. 2 Q. Do you know what kind of 3 standards that they apply in determining 4 whether to call -- whether to say whether 5 there's a potential for harm with a 6 substance? 7 A. Just what is in the 8 document. And then I use my own 9 professional judgment, whether I agree 10 with that or not. 11 Q. Did plaintiff's counsel 12 provide you with some scientific and 13 medical literature with regard to talc or 14 ovarian cancer? 15 A. So the question is whether I 16 was provided with some scientific and 17 medical literature with regard -- yes, 18 many of the articles in the binders were 19 provided to me by them. 20 Q. Are you able to identify 21 which of those articles came from 22 plaintiffs' counsel versus which you 23 found on your own? 24 A. I may be able to do that</p>

97 (Pages 382 to 385)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 386</p> <p>1 with some, yes. But this is over a 2 period of, as I said, 2017 to now. 3 Q. With regard to your 4 invoices -- do you have your invoices 5 there? 6 A. I do not. 7 Q. They've been marked as an 8 exhibit. 9 A. Oh. 10 Q. Can someone help her find 11 those invoices? 12 MS. O'DELL: Did you take 13 them back? I don't know that -- 14 there was only one copy. 15 MR. HEGARTY: I don't think 16 I did. I think it was Exhibit 1. 17 MS. O'DELL: The reason I 18 say that is I did not see it 19 during the lunch break when I 20 looked at -- 21 THE WITNESS: I do have the 22 invoices in my binder here. 23 BY MR. HEGARTY: 24 Q. Okay. If you can turn to</p>	<p style="text-align: right;">Page 388</p> <p>1 Q. What are the differences 2 between your current report dated 3 November 16, 2018, and the final report 4 that you provided as shown here back in 5 February of 2018? 6 A. It was -- I own that. It 7 should have said draft report. And the 8 difference is that that's more literature 9 and more time had gone by for the 10 emergence and review of more literature. 11 Q. You go from a reference on 12 February 4, 2018, to the next reference 13 on September 20th -- I'm sorry. Did I 14 say -- let me back up. 15 You go from a reference on 16 February 4, 2018, to the next cite for 17 time on September 20, 2018. Did you 18 review any additional literature between 19 February 4th and September 20, 2018? 20 A. Yes, I'm sure I did. And I 21 also reviewed the production documents 22 within that time. More of the production 23 documents. 24 Q. Your report doesn't show any</p>
<p style="text-align: right;">Page 387</p> <p>1 your binder, please. 2 A. If I recall. 3 Q. If we can find that exhibit, 4 that would be helpful? 5 MS. O'DELL: I'm not sure 6 there are any invoices in her 7 binder. 8 Is it in the stack that's 9 right there? 10 MR. HEGARTY: No, I don't 11 think so. 12 BY MR. HEGARTY: 13 Q. Yeah invoices. I found it. 14 Your invoices, Doctor, 15 reflect that you prepared a final report 16 delivered on February 4, 2018. 17 Do you see that? 18 A. I do see that. 19 Q. That was almost a year ago, 20 correct? 21 MS. O'DELL: Objection to 22 form. 23 THE WITNESS: Yes. 24 BY MR. HEGARTY:</p>	<p style="text-align: right;">Page 389</p> <p>1 time invoiced between February 4, 2018, 2 and September 20, 2018. Did you spend 3 time reviewing literature or otherwise 4 working on your report that's not 5 contained in your invoices? 6 A. It -- I may have. I did not 7 always invoice for something that I spent 8 maybe an hour on. 9 Q. Are you able to cite for me 10 the sections in your report that you 11 added or changed between the report that 12 you prepared on February 4, 2018, and the 13 November 16, 2018, report? 14 A. Not without seeing both 15 reports side by side. 16 Q. Do you still have a copy of 17 the February 4, 2018, report? 18 A. Not with me. 19 Q. Does it exist? 20 A. It likely does on my 21 computer, yes. 22 Q. You mentioned that you 23 referred to -- that you reviewed Julie 24 Pier's deposition testimony?</p>

98 (Pages 386 to 389)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 390</p> <p>1 A. I said three-quarters of the 2 deposition, half to three-quarters. 3 Q. That was provided to you by 4 counsel for plaintiffs, correct? 5 A. Yes, correct. 6 Q. Do you know how they went 7 about selecting the deposition 8 transcripts to provide to you for 9 purposes of your review in this case? 10 A. I do not. 11 Q. Did you ask for any 12 deposition -- did you ask for the 13 depositions of all experts who have 14 testified in this litigation? 15 MS. O'DELL: Objection to 16 form. 17 THE WITNESS: I did not ask 18 for depositions. 19 Let me -- let me retract 20 that, please. If in reading my 21 literature there was something 22 that I thought might be in a 23 deposition of someone, I asked the 24 plaintiff attorneys if they had</p>	<p style="text-align: right;">Page 392</p> <p>1 Canada, like Exhibit Number 9? 2 A. I'm sorry. 3 MS. O'DELL: Objection to 4 form. 5 THE WITNESS: All I can say 6 is that in working with Health 7 Canada on immunology in my early 8 career days, that I may have used 9 an assessment like that. 10 BY MR. HEGARTY: 11 Q. Can you cite for me, sitting 12 here today, anytime that you -- your 13 opinions were informed by a Health Canada 14 safety assessment or screening 15 assessment? 16 MS. O'DELL: Object to the 17 form. Other than what she said? 18 THE WITNESS: Except for 19 what I said, I cannot recall. 20 BY MR. HEGARTY: 21 Q. Did you review for purposes 22 of your opinions in this case the current 23 National Cancer Institutes position -- 24 healthcare -- healthcare -- health</p>
<p style="text-align: right;">Page 391</p> <p>1 anything in that regard that would 2 lend to my opinion. 3 BY MR. HEGARTY: 4 Q. And did you ever ask for any 5 additional depositions beyond those that 6 were provided? 7 A. No, I did not. 8 Q. Going back to the Health 9 Canada assessment. Have you ever cited 10 to a Health Canada assessment in any 11 written publication of yours? 12 A. Without looking at my 13 publications, I cannot. But I can tell 14 you that coming to mind just sitting 15 here, as I said, I worked with Health 16 Canada, and I worked with them on my 17 research in fish immunology, and it is 18 possible that I cited Health Canada -- 19 Health Canada literature in those 20 publications concerning fish. 21 Q. Sitting here today, can you 22 recall at any point in time when you -- 23 when your opinions were informed by a 24 draft screening assessment by Health</p>	<p style="text-align: right;">Page 393</p> <p>1 professional PDQ, or the NCI PDQ? 2 A. I have seen that recently. 3 Q. I'll mark as Exhibit Number 4 23, a copy of the NCI PDQ that mentions 5 talc. 6 (Document marked for 7 identification as Exhibit 8 Zelikoff-23.) 9 BY MR. HEGARTY: 10 Q. Have you seen what I marked 11 as Exhibit 23 before -- or as of the time 12 that you drafted your report? 13 A. No, sir. 14 Q. Plaintiffs' counsel did not 15 provide you a copy of that? 16 A. Not prior to my report, no. 17 Q. How did you happen -- who -- 18 strike that. 19 Did -- from where did you 20 receive a copy of Exhibit 23 after 21 preparing your report? 22 A. From the plaintiff attorney. 23 Q. Did you ask for it? 24 A. In general, I asked for all</p>

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 394</p> <p>1 relevant literature and internal 2 information. But I did not specifically 3 ask for the NCI report. 4 Q. When you asked for all 5 relevant information, internal 6 information, was that prior to preparing 7 your expert report? 8 A. That's pretty much on a 9 chronic level, in other words from the 10 time that I was recruited or asked to 11 participate in this, I always asked, "Is 12 there literature? Is there more 13 literature? Here is the literature that 14 I have found," which were quite a number. 15 "Is there anything else that you can add 16 to this?" So I provided literature, and 17 they provided me with literature. 18 Q. You did not find the NCI's 19 PDQ yourself? 20 A. I did not find it myself. 21 Q. Did the NCI PDQ statements 22 on perineal talc exposure inform your 23 opinions in this case? 24 A. As I said, I only saw it</p>	<p style="text-align: right;">Page 396</p> <p>1 A. I reviewed their opinions. 2 I have many questions about how they 3 reached their opinions and what studies 4 they used. 5 If we can just be on the 6 same page in terms of what their opinion 7 is? 8 Q. I'm looking at the section 9 under perineal talc exposure. And my -- 10 my question is -- strike that. 11 I'm looking at the section 12 on perineal talc exposure which is about 13 four pages from the end. 14 A. I see. 15 Q. And my question is only 16 whether that section informed your 17 opinions in this case. 18 MS. O'DELL: Object to the 19 form. 20 THE WITNESS: I reviewed it. 21 It did not change my opinion. 22 Did -- did it inform my opinion? 23 It did not change my opinion. 24 BY MR. HEGARTY:</p>
<p style="text-align: right;">Page 395</p> <p>1 within the last few days. 2 Q. Understood. But you also 3 reviewed the Saed manuscript, you 4 reviewed the Canadian health assessment. 5 You said both those documents informed 6 your opinions. 7 So my question is, did the 8 NCI PDQ also inform your opinions. 9 MS. O'DELL: Object to the 10 form. 11 THE WITNESS: Well, the -- 12 the documents that you previously 13 mentioned do not inform my opinion 14 prior to my report of 15 November 16th. However, it's 16 information that has added to me 17 to get to this place where I am 18 right now. 19 So my opinion has not 20 changed from my report until 21 sitting here today. 22 BY MR. HEGARTY: 23 Q. Did the NCI PDQ add to your 24 opinions in this case?</p>	<p style="text-align: right;">Page 397</p> <p>1 Q. Do you agree with the NCI 2 PDQ statement on perineal talc exposure? 3 A. If we are talking about 4 their final conclusion? 5 Q. I'm talking -- yes. We can 6 talk about their final conclusion. 7 A. Okay. If I'm recalling 8 this, their final conclusion that -- was 9 that there was no causal relationship 10 between talc -- talcum powder exposure 11 and ovarian cancer. Is that -- 12 Q. Well, the -- the weight of 13 the evidence does not support an 14 association between perineal talc 15 exposure and an increased risk of ovarian 16 cancer. Do you agree with that 17 statement? 18 A. I do not agree with that 19 statement. 20 And I find, in reading this 21 document, that I'm not sure how they 22 reached that conclusion. On several 23 points, if you're interested. 24 One is --</p>

100 (Pages 394 to 397)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 398</p> <p>1 Q. No, I'm just asking you 2 whether you agreed with it. 3 A. I do not agree with their 4 final conclusion. 5 Q. Neither FDA nor any 6 scientific regulatory or other group has 7 ever sought out your opinions with regard 8 to the biologic plausibility of talc and 9 ovarian cancer, correct? 10 A. That is correct. 11 Q. You made reference earlier 12 to the Penninkilampi article. Do you 13 recall that? 14 A. I recall mentioning it, yes. 15 Q. I'm going to mark as 16 Exhibit 34 a copy of the Penninkilampi 17 article. That's the article that you 18 were talking about earlier, correct? 19 A. 2018, correct. 20 (Document marked for 21 identification as Exhibit 22 Zelikoff-34.) 23 BY MR. HEGARTY: 24 Q. If you turn over to page --</p>	<p style="text-align: right;">Page 400</p> <p>1 A. Yes, I do. 2 Q. Third line down it says, 3 "The mechanism by which perineal talc use 4 may increase the risk of ovarian cancer 5 is uncertain." 6 Do you agree with that 7 statement? 8 MS. O'DELL: Objection to 9 form. 10 THE WITNESS: I think 11 there's no -- in providing 12 biological plausibility, 13 biological plausibility, in and of 14 itself, says that there is a 15 possible mechanism or action that 16 could provide evidence for the 17 causation. 18 So the mechanism by which 19 perineal talc use may increase the 20 risk of ovarian cancer is 21 uncertain. It does not mean 22 it's -- it means it's uncertain, 23 that there are many viewpoints on 24 it.</p>
<p style="text-align: right;">Page 399</p> <p>1 strike that. 2 This is an article that you 3 rely on for purposes of your opinions in 4 this case, correct? 5 A. This is an article that I 6 reviewed and played into, yes, informed 7 my opinions. 8 Q. Did you find it to be a 9 reliable source of information? 10 MS. O'DELL: Object to the 11 form. 12 THE WITNESS: I found no 13 problems in the study design as I 14 read it. 15 Again, I'm not an 16 epidemiologist. So getting into 17 the nuances of this. I'm a 18 toxicologist and I depend on my 19 epidemiology colleagues to fill in 20 the gaps. 21 BY MR. HEGARTY: 22 Q. Over on Page 45, under the 23 section Discussion. Do you see that 24 section?</p>	<p style="text-align: right;">Page 401</p> <p>1 BY MR. HEGARTY: 2 Q. At the very -- in the very 3 last line of that article -- I'm sorry, 4 the very last line of that paragraph it 5 says, "The potential mechanism by which 6 genital talc is associated with an 7 increased risk of ovarian cancer hence 8 remains unclear." 9 Do you agree with that 10 statement? 11 A. I think there is -- in -- in 12 regards to your previous questions that 13 asked me if it was -- if there was an 14 agreement among the medical population, 15 and I said that I didn't know that there 16 was agreement or was not agreement. I 17 thought that there were not agreement. 18 So I agree with the statement that there 19 is still room for further study. 20 Unclear does not mean 21 unknown or that there are not biological 22 plausible mechanisms that could be 23 entertained. 24 Q. Is inflammation part of a</p>

101 (Pages 398 to 401)

Judith Zelikoff, Ph.D.

Page 402	Page 404
<p>1 normal mechanism of response to the 2 presence of particles in the lungs? 3 A. Depending upon the particle, 4 inflammation can be a normal part of a 5 response, yes. 6 Q. Can tumors occur in the 7 respiratory system with very high 8 exposure to particles that overwhelm the 9 body's clearance mechanisms and lead to 10 particle overload of lung macrophages? 11 A. Are you referring to the NTP 12 study? 13 Q. I'm not referring to any 14 study in particular. That was just a 15 question in general. 16 A. Okay. Can you repeat the 17 question? 18 Q. Yeah. Can tumors occur in 19 the respiratory system with very high 20 exposure to particles that overwhelm the 21 body's clearance mechanisms and lead to 22 particle overload of lung macrophages? 23 MS. O'DELL: Object to form. 24 THE WITNESS: That is a --</p>	<p>1 statement in the third paragraph at the 2 end that says even incidental -- the 3 third paragraph at the end. 4 A. I was looking for a pen. 5 Excuse me. 6 Okay. Go ahead. 7 Q. Says, "Even incidental 8 contamination by amphibole forms of 9 asbestos is hazard enough to cause 10 asbestos-related illnesses." 11 Do you see where I'm 12 reading? 13 A. I'm sorry, are you in the 14 first paragraph? 15 Q. Third paragraph. 16 A. Third paragraph. 17 Q. At the end. 18 A. At the -- traces of these 19 types of asbestos are -- 20 Q. No, third paragraph. 21 Even -- the last line. "Even incidental 22 contamination by amphibole forms of 23 asbestos is hazard enough to cause 24 cancer-related illnesses."</p>
Page 403	Page 405
<p>1 that has been seen as a 2 potential -- as a potential to 3 occur, yes. 4 BY MR. HEGARTY: 5 Q. Are there any publications 6 that indicate such a mechanism of 7 particle overload can occur in the 8 ovaries? 9 MS. O'DELL: Objection to 10 form. 11 THE WITNESS: No studies 12 that I'm aware of that -- that 13 refer to particle overload in the 14 ovaries in this regard, in regard 15 to talcum powder. There's 16 evidence, of course, as I said 17 that there is talcum powder in the 18 ovary. 19 BY MR. HEGARTY: 20 Q. Over on Page 5 of your 21 report, Exhibit 2. 22 A. Page headed by Section 4, 23 Asbestos? 24 Q. Correct. You make a</p>	<p>1 Do you see where I'm 2 reading? 3 A. Says, "Cause 4 asbestos-related illnesses." 5 Q. I'm sorry. "Can cause 6 asbestos-related illnesses." You cite -- 7 A. I see where you are reading. 8 Q. -- the Rohl and Langer 9 paper? 10 A. Yes. 11 Q. I'll mark as Exhibit 35 the 12 Rohl and Langer paper that you've cited. 13 (Document marked for 14 identification as Exhibit 15 Zelikoff-35.) 16 BY MR. HEGARTY: 17 Q. Doctor, nowhere in that 18 paper did the author say that incidental 19 contamination by amphibole forms of 20 asbestos is hazard enough -- hazardous 21 enough to cause asbestos-related 22 illnesses, do they? 23 MS. O'DELL: Objection to 24 form.</p>

102 (Pages 402 to 405)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 406</p> <p>1 THE WITNESS: I'm sorry, I'm</p> <p>2 not certain that this is the same</p> <p>3 paper. This is Rohl, et al. The</p> <p>4 paper that I cited is Rohl and</p> <p>5 Langer.</p> <p>6 BY MR. HEGARTY:</p> <p>7 Q. It's dated 1976 --</p> <p>8 A. 1976.</p> <p>9 Q. -- correct?</p> <p>10 A. That's correct.</p> <p>11 Q. If you look in the abstract</p> <p>12 of that paper --</p> <p>13 A. Yes. The paper --</p> <p>14 Q. -- the paper that I marked</p> <p>15 as Exhibit 35.</p> <p>16 A. Rohl, et al, yes.</p> <p>17 Q. Yes. It says, "It's</p> <p>18 possible adverse health effects from</p> <p>19 intermittent use of these products,</p> <p>20 especially those that contain asbestiform</p> <p>21 and fragmented anthophyllite, tremolite,</p> <p>22 chrysotile, quartz, and trace minerals</p> <p>23 are presently unknown and warrant</p> <p>24 evaluation."</p>	<p style="text-align: right;">Page 408</p> <p>1 Many investigators,</p> <p>2 including myself, have papers that come</p> <p>3 out the same year but with different</p> <p>4 authors.</p> <p>5 Q. If you -- you turn over to</p> <p>6 Page 6 of your report.</p> <p>7 A. Yes, sir.</p> <p>8 Q. At the end of the first</p> <p>9 paragraph, at the top of the page.</p> <p>10 A. Yes.</p> <p>11 Q. You say that "the close</p> <p>12 proximity of asbestos in talc and mineral</p> <p>13 deposits makes extraction of either</p> <p>14 material alone difficult, if not</p> <p>15 impossible."</p> <p>16 Do you see where I'm</p> <p>17 reading?</p> <p>18 A. Yes, I do.</p> <p>19 Q. Is it your testimony that it</p> <p>20 is impossible to extract talc from</p> <p>21 mineral deposits without asbestos?</p> <p>22 MS. O'DELL: Objection to</p> <p>23 form.</p> <p>24 THE WITNESS: I'm not a --</p>
<p style="text-align: right;">Page 407</p> <p>1 Did I read that correctly?</p> <p>2 A. I'm sorry, you are in the</p> <p>3 abstract, but I don't know what line you</p> <p>4 are on.</p> <p>5 Q. The very last line of the</p> <p>6 abstract.</p> <p>7 A. "Possible adverse health</p> <p>8 effects from intermittent use of these</p> <p>9 products especially those that contain</p> <p>10 asbestiform and fragmented anthophyllite,</p> <p>11 tremolite, chrysotile, quartz, and trace</p> <p>12 minerals are presently unknown and</p> <p>13 warrant evaluation."</p> <p>14 Yes. This is also dated</p> <p>15 1976.</p> <p>16 Q. Which is the date that you</p> <p>17 cite to the Rohl and Langer paper?</p> <p>18 A. Yes, I -- I understand that,</p> <p>19 sir. However, because this is a Rohl et</p> <p>20 al., it is certainly possible that I</p> <p>21 miscited and it was Rohl et al. But my</p> <p>22 citation in there is Rohl and Langer. So</p> <p>23 it may have been an error on my part.</p> <p>24 However, there's pause.</p>	<p style="text-align: right;">Page 409</p> <p>1 I'm not a geologist. I cannot --</p> <p>2 I can only rely on the references</p> <p>3 that are there.</p> <p>4 BY MR. HEGARTY:</p> <p>5 Q. Can you list all the steps</p> <p>6 used in the processing of pharmaceutical</p> <p>7 grade talc?</p> <p>8 A. I can give you an overview.</p> <p>9 But again, I'm not a commercial talc</p> <p>10 production person, nor am I a geologist,</p> <p>11 nor am I in the industry. So I can only</p> <p>12 give you a superficial glimpse.</p> <p>13 Q. Can you describe the</p> <p>14 beneficiation for talc?</p> <p>15 MS. O'DELL: Objection to</p> <p>16 form. Asked and answered.</p> <p>17 THE WITNESS: Not in -- not</p> <p>18 in detail. I only know in general</p> <p>19 that there is -- actually, I</p> <p>20 prefer not to answer that at all</p> <p>21 because I don't want to be</p> <p>22 inaccurate. It's not my field.</p> <p>23 BY MR. HEGARTY:</p> <p>24 Q. Can you turn over to Page 7</p>

103 (Pages 406 to 409)

Judith Zelikoff, Ph.D.

Page 410	Page 412
<p>1 of your report. 2 In the second paragraph you 3 refer to the deposition of Alice Blount. 4 Do you see that? 5 A. Yes, I do. Second sentence. 6 Q. And you contend that the 7 sample she tested claimed to include 8 asbestos, including asbestos in Johnson's 9 Baby Powder. Do you see where you make 10 that reference? 11 A. Yes, I'm citing her 12 deposition. 13 Q. Did you read the entirety of 14 her deposition? 15 A. No, sir. 16 Q. What testing method did she 17 use? 18 A. I'd like to see the 19 deposition again. 20 Q. Did you see from her 21 deposition where she testified that her 22 results published in 1991 came from a 23 Johnson's Baby Powder bottle purchased in 24 1996?</p>	<p>1 Q. You read every word of it? 2 A. I reviewed it. And I read 3 it to the best of my ability. 4 Q. You make reference there to 5 Exhibits 47 and 28, 47 from Julie Pier 6 deposition and 28 from Dr. Hopkins' 7 deposition. 8 Do you see that? 9 A. Yes, I do. 10 Q. Do you know who prepared 11 those exhibits? 12 A. I do not. I would make an 13 assumption that it was attorneys. 14 Q. Were you aware that they 15 were prepared by counsel for plaintiffs? 16 MS. O'DELL: Objection to 17 form. 18 THE WITNESS: As the 19 questions were asked by some of 20 the attorneys for the plaintiff, I 21 would make that assumption. 22 BY MR. HEGARTY: 23 Q. Did you do anything yourself 24 to verify the accuracy of the information</p>
Page 411	Page 413
<p>1 A. You know, I'm waiting for 2 the -- see the article, please. 3 Q. Let me withdraw the 4 question. I don't have time to cover 5 that. 6 If you turn over to -- if 7 you look at Page 7, the second-to-last 8 paragraph you make reference there to the 9 testimony of Dr. Hopkins and the 10 testimony of Julie Pier. 11 Do you see that? 12 A. I see reference to 13 Dr. Hopkins in the third sentence. And 14 in the same paragraph, I see on the last 15 sentence, deposition of Julie Pier, 16 corporate representative of Imerys. 17 Q. You've already testified 18 that you have not completed reading the 19 deposition of Julie Pier, correct? 20 A. I have testified to that, 21 yes. 22 Q. Did you read the entirety of 23 the deposition of Dr. Hopkins? 24 A. I read the entirety, yes.</p>	<p>1 in any of those exhibits? 2 A. I'm not sure what you mean 3 did I do anything myself. I read them, 4 and I did not do any further literature 5 searching, if that's what you mean. 6 Q. Did you review the test 7 results themselves that are supposedly 8 reported in those two exhibits? 9 MS. O'DELL: Objection to 10 form. 11 THE WITNESS: Did I review 12 the testing methodology? I did 13 not review it in the sense that I 14 did further literature searching, 15 but I -- I looked at and reviewed 16 the testing methods that they -- 17 that they said they used. 18 BY MR. HEGARTY: 19 Q. Did you actually pull the 20 tests that are referenced in those 21 exhibits and look at the test results 22 yourself? 23 A. I did not. 24 Q. Are you aware that in 2009</p>

104 (Pages 410 to 413)

Judith Zelikoff, Ph.D.

Page 414	Page 416
<p>1 FDA pulled -- did its own testing with 2 regard to asbestos and talc? 3 A. I am aware of that. 4 Q. Did you review the results 5 of those tests? 6 A. I did review the results. 7 It doesn't come to mind right now. I'd 8 like to see a copy of it, if I may. 9 Q. Nowhere in your report do 10 you cite those test results, do you? 11 A. Not that I can recall. 12 I do cite a paper or a 13 comment by Epstein writing to the FDA in 14 here. And the FDA's response in terms of 15 migration. 16 But in answer to your 17 question -- can you repeat your question? 18 Q. Sure. Did you cite -- you 19 agree that you didn't cite anywhere -- 20 strike that. 21 You did not cite anywhere in 22 your report the results of the FDA's 23 testing of talc in 2009, correct? 24 A. It doesn't appear so, no.</p>	<p>1 THE WITNESS: There are many 2 studies that IARC used, not just 3 worker study populations. 4 BY MR. HEGARTY: 5 Q. But their conclusion with 6 regard to designating talc -- sorry, 7 designating asbestos as Category 1 was 8 based on five cohort studies involving 9 heavy industrial exposure, correct? 10 A. The preponderance -- or the 11 weight -- the weight of evidence was 12 contributed among all studies, but it's 13 my -- it's my thought that the worker 14 studies were probably weighted as heavy 15 as any others. 16 Q. You agree -- you agree that 17 nowhere in your report do you analyze 18 what asbestos exposure levels had been 19 shown to induce a biologically plausible 20 effect in tissues, correct? 21 MS. O'DELL: Object to the 22 form. 23 THE WITNESS: Again, what do 24 you mean by analyze?</p>
Page 415	Page 417
<p>1 Q. Did you have that 2 information before you finalized your 3 report? 4 A. I'm not certain. Probably 5 yes. 6 Q. Did you review all the 7 epidemiologic literature looking at 8 asbestos exposure and ovarian cancer? 9 A. Well, as I said, I'm not an 10 epidemiologist. So I looked at several 11 of the meta-analyses, including 12 Dr. Taher. 13 Q. Did you read all the 14 meta-analyses that had been published 15 with regard to asbestos and ovarian 16 cancer? 17 A. No, I have not. 18 Q. The medical literature 19 looking at asbestos exposure and ovarian 20 cancer was based on exposure to -- was 21 based on a heavy industrial exposure, 22 correct? 23 MS. O'DELL: Objection to 24 form.</p>	<p>1 BY MR. HEGARTY: 2 Q. Well, nowhere do you cite 3 studies in your report reporting on the 4 effect of asbestos in tissues, correct? 5 A. I certainly do talk about 6 asbestos. If you give me a minute to 7 review. 8 I talk about it on Page 7 9 being listed as a Group 1 carcinogen. 10 Q. My question is nowhere in 11 your report do you analyze the studies 12 that look at the toxicity or discuss the 13 toxicity of asbestos in human tissue, 14 correct? 15 MS. O'DELL: Object to the 16 form. 17 THE WITNESS: I -- I did not 18 look at -- I did not analyze in 19 depth, no, the studies that are 20 associated with the IARC report, 21 if that's what you're asking. 22 BY MR. HEGARTY: 23 Q. What type of chromium -- 24 strike that.</p>

105 (Pages 414 to 417)

Judith Zelikoff, Ph.D.

Page 418	Page 420
<p>1 Is chromium-6 in Johnson's 2 Baby Powder? 3 A. Chromium is in Johnson's 4 Baby Powder. 5 Q. I'm sorry? 6 A. Chromium is present. 7 Q. Is chromium-6 present in 8 Johnson's Baby Powder? 9 A. There are indications. They 10 just discuss total chromium. 11 Q. Can you testify here today 12 that Johnson's Baby Powder has chromium-6 13 in it? 14 MS. O'DELL: Object to the 15 form. 16 THE WITNESS: Again, not 17 being a geologist and only going 18 by the internal documents, and if 19 I may also look at one of the 20 exhibits that has the data for the 21 metals. I'm sorry. 22 MS. O'DELL: It's Exhibit C 23 that was marked. 24 THE WITNESS: I don't want</p>	<p>1 Q. Of your report. The third 2 paragraph from the bottom where it 3 begins, "Chromium-3." 4 A. Yes. 5 Q. You say, "Chromium-3 has 6 weak cell membrane permeability, allowing 7 it to cross the cell membrane in order to 8 bind to DNA and cause lesions." That's 9 not correct, is it? 10 A. That is not correct. That 11 is an error on my part in the report. 12 Chromium-3 has strong membrane 13 permeability. And when you asked me the 14 question initially whether there was an 15 error in my report, I should have looked 16 at it, and that is an error. Yes. 17 Q. In fact chromium-3 does not 18 cross the cell membrane, correct? It's 19 unable to cross the cell membrane? 20 A. Chromium-6 crosses the cell 21 membrane and then converts into -- is 22 oxidized to chromium-3. And chromium-3 23 is the actual component which causes the 24 instability.</p>
Page 419	Page 421
<p>1 to go by my memory alone. I'd 2 like to see that. 3 Thank you very much. 4 In the document prepared as 5 Exhibit C, chromium has not been 6 speciated and it's listed as total 7 chromium. I would make the 8 assumption from my professional 9 opinion that in mining, you do get 10 both chromium-6 and chromium-3 11 when you have -- when you're 12 mining talc. But I'm not a 13 geologist. 14 BY MR. HEGARTY: 15 Q. Does chromium-6 only come 16 through industrial processing? 17 A. No. It can actually be 18 found in the soil as a product of 19 contamination. 20 Q. If you look over -- 21 A. And it can be re-oxidized. 22 Yes. 23 Q. If you look over on Page 9? 24 A. Of?</p>	<p>1 Q. But chromium-3 is unable to 2 cross the cell membrane, correct? 3 A. Completely. To some degree 4 it has -- it can cross to some -- some 5 minimal degree. But it's hexavalent 6 chromium which can cross -- which has 7 great capacity to cross the cell 8 membrane, yes. 9 May I take a minute, please. 10 Let me -- let me restate 11 based upon the third paragraph that 12 starts, "Chromium-3 has weak cell 13 membrane permeability." 14 It has weak to no cell 15 membrane permeability. 16 It is the active oxidized 17 product of hexavalent chromium or 18 chromium-6, that along with chromium-4 19 and chromium-5 which is responsible for 20 genetic instability and oxidative stress. 21 So it's chromium-3. 22 Q. If you turn over to Page 23 13 -- I'm sorry, Page 12 of your report. 24 Section entitled C, Fragrances?</p>

106 (Pages 418 to 421)

Judith Zelikoff, Ph.D.

Page 422	Page 424
<p>1 A. Yes.</p> <p>2 Q. As of the time you prepared</p> <p>3 your report, your entire opinions with</p> <p>4 regard to fragrances was based on the</p> <p>5 report by Michael Crowley, correct?</p> <p>6 A. That is correct.</p> <p>7 Q. You understand --</p> <p>8 A. And, and what I know about</p> <p>9 some of the components from other --</p> <p>10 other studies.</p> <p>11 Q. Have you had any prior work</p> <p>12 experience with him?</p> <p>13 A. Dr. Michael Crowley?</p> <p>14 Q. Yes.</p> <p>15 A. No.</p> <p>16 Q. Do you know anything about</p> <p>17 his qualifications beyond -- beyond what</p> <p>18 you read in his report?</p> <p>19 A. No. Just in his report and</p> <p>20 the information that he gives about</p> <p>21 himself. And the questions that were</p> <p>22 asked to him and the responses.</p> <p>23 Q. You say that you concur --</p> <p>24 "I concur with his opinion." Does that</p>	<p>1 expert witness report in litigation?</p> <p>2 MS. O'DELL: Object to the</p> <p>3 form.</p> <p>4 THE WITNESS: I am trying to</p> <p>5 recall whether or not I have ever</p> <p>6 had that opportunity.</p> <p>7 BY MR. HEGARTY:</p> <p>8 Q. Sitting here right now, can</p> <p>9 you recall when you had such an</p> <p>10 opportunity?</p> <p>11 A. In this particular setting</p> <p>12 of being deposed?</p> <p>13 Q. Or in any -- in any setting</p> <p>14 where you are concurring with the opinion</p> <p>15 of someone who -- who comments on</p> <p>16 toxicity in an expert witness report</p> <p>17 written for litigation?</p> <p>18 MS. O'DELL: Objection to</p> <p>19 form.</p> <p>20 THE WITNESS: I would --</p> <p>21 I -- I would comment on it if I</p> <p>22 agreed.</p> <p>23 And in this case, you know,</p> <p>24 having the knowledge base that I</p>
Page 423	Page 425
<p>1 mean that you agreed with everything that</p> <p>2 he says in his report?</p> <p>3 MS. O'DELL: Object to the</p> <p>4 form.</p> <p>5 THE WITNESS: I concur with</p> <p>6 his statement which says that</p> <p>7 "some of these chemicals in</p> <p>8 fragrances may contribute to the</p> <p>9 inflammatory response, toxicity</p> <p>10 and potential carcinogenicity of</p> <p>11 Johnson & Johnson talcum powder</p> <p>12 products."</p> <p>13 And that's based on the</p> <p>14 knowledge of some of the chemicals</p> <p>15 as I said that I've reviewed for</p> <p>16 other studies and personal</p> <p>17 studies. And they are indeed</p> <p>18 inflammatory and can cause</p> <p>19 toxicity.</p> <p>20 BY MR. HEGARTY:</p> <p>21 Q. Prior to reading</p> <p>22 Dr. Crowley's report, had you ever</p> <p>23 concurred with a finding as to toxicity</p> <p>24 of a substance based on the reading of an</p>	<p>1 have, not on -- certainly not on</p> <p>2 all 150 different chemicals, which</p> <p>3 is why I did my own literature</p> <p>4 search, but on the chemicals that</p> <p>5 I do know, I did agree with the</p> <p>6 fact that they -- they do</p> <p>7 contribute to inflammatory</p> <p>8 responses, toxicity, some are</p> <p>9 cytotoxic and produce cell injury</p> <p>10 and potential carcinogenicity.</p> <p>11 So as ethyl benzene as one</p> <p>12 of the ingredients or one of the</p> <p>13 constituents in fragrances, is</p> <p>14 listed as a type -- as a Class 2</p> <p>15 carcinogen. So I did agree with</p> <p>16 it.</p> <p>17 If I had any question, I did</p> <p>18 my own search.</p> <p>19 BY MR. HEGARTY:</p> <p>20 Q. Over on page -- Pages 12 and</p> <p>21 13, again you discuss exposure routes of</p> <p>22 talc either through perineal exposure or</p> <p>23 through inhalation, correct? And that</p> <p>24 carries over to Pages 14 and 15, and 16</p>

107 (Pages 422 to 425)

Judith Zelikoff, Ph.D.

Page 426	Page 428
<p>1 and 17. 2 A. Okay. 3 Q. So in that section, did you 4 in any way analyze whether the particles 5 that -- whether talc can transport in the 6 same way that the particles do in the 7 studies that you cite? 8 MS. O'DELL: Objection to 9 form. 10 BY MR. HEGARTY: 11 Q. In other words, did you cite 12 any authority showing that talc particles 13 transport in the same way as the 14 particles you reference in these studies? 15 A. Not conclusively. But as I 16 said, if the particles are of similar 17 sizes, which they are in these -- in 18 these animal studies, then I would have 19 no reason to believe that the talc 20 particles did not move in the same 21 manner. 22 Q. Well, do you agree that it 23 is important when talking about transport 24 of particles, that -- strike that. Let</p>	<p>1 that are applied to talc via the perineal 2 route? 3 A. What I did was I looked at 4 the internal documents, found that the -- 5 according to the -- the instrumentation 6 and the graphics that they did, as well 7 as Dr. Longo, and looked at the size 8 range of the particles. As I said, the 9 median and the average is around 10.5 to 10 11.5, but there were particle size range 11 in the talc -- talcum powder products 12 that range all the way from 50 microns or 13 larger all the way down to 0.3 microns or 14 300 nanometers. 15 Q. Well, did you do any 16 correlation to determine whether the -- 17 the size of the particles studied in 18 the -- in the articles you cite in any 19 way correlate or relate to the particle 20 sizes in Johnson's Baby Powder? 21 MS. O'DELL: Object to the 22 form. 23 THE WITNESS: The size of 24 particles that were used in many</p>
Page 427	Page 429
<p>1 me ask it a different way. 2 You cite to an authority 3 that makes the following statement, I 4 don't want to ask you -- I want to ask 5 you if you agree with it. 6 A. Okay. 7 Q. In an experiment to 8 evaluate -- 9 A. I'm sorry. What page? 10 Q. It's -- it's not on -- it's 11 not in your report. It's part of my 12 question. 13 A. Okay. 14 Q. Do you agree that in an 15 experiment to evaluate the translocation 16 of solid particles, the characteristics 17 of the particle, i.e., size and material, 18 should be considered carefully? 19 A. I agree that the size should 20 be considered very carefully. 21 Q. And did you do any 22 comparison with the size of particles 23 that are referenced in the literature 24 that you cite, to the size of particles</p>	<p>1 of the animal studies certainly 2 fall within the range that I just 3 gave you. 4 BY MR. HEGARTY: 5 Q. Well, a number of the animal 6 studies used nanoparticles, correct? 7 A. They used .1 micron, but 8 they also used larger particles. 9 Q. Is it your testimony that 10 there are nanoparticles of talc in 11 Johnson's Baby Powder? 12 A. If a particle -- a particle 13 is considered an ultra fine particle if 14 it's .1 micron or less. 15 Q. But my question is as to 16 nanoparticles. Are there nanoparticles 17 in Johnson's Baby Powder? 18 A. Not that your literature 19 showed. But ultra fines are also -- can 20 be called nanoparticles because they go 21 as low as .1. 22 Q. If you look over on Page 14 23 of your report, you cite in the second 24 paragraph a letter from FDA to</p>

108 (Pages 426 to 429)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 430</p> <p>1 Dr. Epstein, correct?</p> <p>2 A. That's correct.</p> <p>3 Q. I marked as Exhibit</p> <p>4 Number 33 a copy of that letter.</p> <p>5 (Document marked for</p> <p>6 identification as Exhibit</p> <p>7 Zelikoff-33.)</p> <p>8 BY MR. HEGARTY:</p> <p>9 Q. Is that a copy of the letter</p> <p>10 that you are referencing in that</p> <p>11 paragraph?</p> <p>12 A. If you could point me to the</p> <p>13 paragraph, please.</p> <p>14 Q. Well, it's the second --</p> <p>15 it's the second paragraph at the top of</p> <p>16 Page 14.</p> <p>17 A. Stating "further evidence</p> <p>18 for migration"?</p> <p>19 Q. Correct.</p> <p>20 A. Okay. Yes. This is the</p> <p>21 letter that I'm referring to.</p> <p>22 Q. In the same paragraph that</p> <p>23 you reference, where you make -- where</p> <p>24 you -- in the same paragraph where you</p>	<p style="text-align: right;">Page 432</p> <p>1 A. I did not.</p> <p>2 Q. Why not?</p> <p>3 A. And in terms of my report,</p> <p>4 and talking about migration, again, the</p> <p>5 ovarian cancer and cogent biological</p> <p>6 mechanism was not appropriate for that,</p> <p>7 where I cited the original statement.</p> <p>8 Q. But you cite elsewhere in</p> <p>9 your report statements and studies you</p> <p>10 contend support your opinion that there</p> <p>11 is a biologically plausible mechanism</p> <p>12 between talc and ovarian cancer, correct?</p> <p>13 A. Yes, I do.</p> <p>14 Q. This statement by FDA</p> <p>15 concerns whether there's a biologically</p> <p>16 plausible mechanism between talc and</p> <p>17 ovarian cancer, correct?</p> <p>18 A. That is -- that is what the</p> <p>19 FDA says, yes.</p> <p>20 Q. Did you cite FDA's statement</p> <p>21 about -- as to its view of whether a</p> <p>22 cogent biological mechanism exists</p> <p>23 anywhere in your report?</p> <p>24 A. I did not cite this</p>
<p style="text-align: right;">Page 431</p> <p>1 pull out the statement that you cite</p> <p>2 here, "FDA states that while there exists</p> <p>3 no direct proof of talc in ovarian</p> <p>4 carcinogenesis" --</p> <p>5 A. Genesis?</p> <p>6 Q. Genesis, carcinogenesis.</p> <p>7 It's getting late for me too.</p> <p>8 Did you cite that finding by</p> <p>9 FDA in this paragraph?</p> <p>10 A. No. What I was trying to</p> <p>11 cite was referring to migration through</p> <p>12 the upper genital tract. So citing the</p> <p>13 information on carcinogenesis would not</p> <p>14 have been appropriate in that paragraph.</p> <p>15 Q. If you turn over to Page 4</p> <p>16 of the FDA's letter. At the very bottom</p> <p>17 FDA states, "A cogent biological</p> <p>18 mechanism by which talc might lead to</p> <p>19 ovarian cancer is lacking."</p> <p>20 Do you see that?</p> <p>21 A. I do see that.</p> <p>22 Q. You do not cite that</p> <p>23 statement anywhere in your report,</p> <p>24 correct?</p>	<p style="text-align: right;">Page 433</p> <p>1 statement.</p> <p>2 Q. You cite one statement by</p> <p>3 FDA that you believe they are correct</p> <p>4 about?</p> <p>5 A. They put a lot of weight</p> <p>6 into that statement and...</p> <p>7 Q. Well, how did you weigh that</p> <p>8 statement versus the other statement that</p> <p>9 I read at the bottom of Page 4?</p> <p>10 A. Sorry, I'd like to find it.</p> <p>11 And repeat the question</p> <p>12 please.</p> <p>13 Q. How did you weigh the</p> <p>14 statements you cite about migration</p> <p>15 versus the other statement that I read at</p> <p>16 the bottom of Page 4 about a cogent</p> <p>17 biologic mechanism?</p> <p>18 A. In terms of the migration,</p> <p>19 this is something that not only has been</p> <p>20 found by the FDA and -- and is being</p> <p>21 reiterated as a result of numerous</p> <p>22 studies, this, Number 4, a cogent</p> <p>23 biological mechanism by which talc led to</p> <p>24 ovarian cancer is lacking is the FDA's</p>

109 (Pages 430 to 433)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 434</p> <p>1 opinion in 19 -- in 2014, and I did not 2 know at all how they came to that 3 conclusion. 4 So in terms of migration, 5 that's been ferreted out and it's well 6 known in the literature for migration of 7 particles. But the -- their opinion, the 8 FDA's opinion on this, I could not 9 substantiate in terms of what they were 10 basing that conclusion on. 11 Q. What methodology did you use 12 to determine which of the statements by 13 FDA in this letter you believed are 14 correct and which you believed are not 15 correct? 16 MS. O'DELL: Object to the 17 form. 18 THE WITNESS: Well, if it 19 was a common finding such as that 20 which particles can migrate which 21 has been shown since late 1990s, 22 versus information that is given 23 in this report and is the basis -- 24 and is what the FDA is opining on,</p>	<p style="text-align: right;">Page 436</p> <p>1 scrutiny. I think that for what they 2 did, they did a good study. 3 Q. If you look at Page 3 of the 4 FDA letter. 5 A. Okay. 6 Q. At the bottom, do you see 7 they comment on the very NTP study -- 8 A. Yes. 9 Q. -- that you just mentioned, 10 right? 11 MS. O'DELL: Which page are 12 you on? 13 MR. HEGARTY: Page 3. 14 THE WITNESS: There were a 15 number -- 16 BY MR. HEGARTY: 17 Q. I'm not -- I'm haven't asked 18 a question. 19 A. Oh, I'm sorry. 20 Q. My question was simply, do 21 you see where they comment on that NTP 22 study? 23 A. I see that, yes. 24 Q. Do you cite anywhere in your</p>
<p style="text-align: right;">Page 435</p> <p>1 however, I don't know what the -- 2 what the literature is that they 3 reached in that conclusion. 4 BY MR. HEGARTY: 5 Q. IARC includes a citation in 6 its 2010 monograph saying essentially 7 that the evidence of migration to the 8 ovaries is weak. Do you recall reading 9 that? 10 A. I do not recall reading 11 that. I've reviewed the IARC paper, but 12 I -- I do not recall. And I could look 13 at it and tell you what I thought. 14 Q. You made reference earlier 15 in the deposition to the 1992 NTP study, 16 correct? 17 A. Yes. 18 Q. Do you find that to be a 19 well-done study? 20 A. For what it was, I do find 21 it to be a well-done study. I've worked 22 with the NTP. I've served as an advisory 23 board member. And I think that the work 24 they do are -- is with rigor and</p>	<p style="text-align: right;">Page 437</p> <p>1 report FDA's commentary on the NTP study? 2 A. I can find it in my report. 3 I did comment on some of the other that 4 there's been some controversy by 5 Dr. Warheit and Dr. Goodman. They had 6 some pushback on this. I think I 7 commented on that, but I'd like to find 8 the page where I said that. 9 Q. You agree that you didn't 10 cite to FDA's commentary about the NTP 11 study in its February 14, 2014, letter? 12 A. Not -- not that I recall, 13 no. But as I said, I did comment on 14 other -- their -- the FDA's comments are 15 very similar to those made by other 16 scientists. 17 Q. You say the FDA's comments 18 are very similar to those made by other 19 scientists. You are talking about the 20 comments on Page 3? 21 A. I am. And I'm talking about 22 the comments made by Dr. Jay Goodman and 23 Dr. David Warheit that pushed back on the 24 studies by the NTP and the conclusion.</p>

110 (Pages 434 to 437)

Judith Zelikoff, Ph.D.

Page 438	Page 440
<p>1 Q. For purposes of your 2 analysis in this case, did you review all 3 the studies on talc miners and millers? 4 A. No, I did not. 5 Q. For purposes -- 6 A. I am not an epidemiologist. 7 Q. For purposes of your 8 analysis in this case, did you look at 9 all the studies looking at talc -- 10 looking at long-term effects of talc 11 pleurodesis? 12 MS. O'DELL: Object to the 13 form. 14 THE WITNESS: It was -- it 15 was not my question to look at -- 16 only to bring the pulmonary 17 aspects in in manners that relate 18 to ovarian effects and 19 inflammation and plausibility. 20 So, no, I did not. I 21 reviewed several studies on 22 pleurodesis, in terms of 23 understanding it, why talcum 24 powder is used, and the effect of</p>	<p>1 So when you're looking at 2 toxicology, it's not just the 3 concentration that you use. It's 4 also the length and duration and 5 frequency of the use and their 6 cumulative effects. 7 BY MR. HEGARTY: 8 Q. Is it your opinion that a 9 single particle of talc is sufficient for 10 biologic plausibility? 11 MS. O'DELL: Objection to 12 form. 13 THE WITNESS: I'm pretty 14 sure I answered that question 15 before. But I will -- again, 16 talcum powder is known to produce 17 inflammation, and inflammation is 18 known to be a biological mechanism 19 for cancer. 20 BY MR. HEGARTY: 21 Q. My question is, is a single 22 particle of talc in vivo sufficient for 23 your biologic plausibility opinion in 24 this case?</p>
Page 439	Page 441
<p>1 talcum powder on pleurodesis. 2 BY MR. HEGARTY: 3 Q. What is the volume of talc 4 that gets introduced in vivo with a 5 single application to the perineum? 6 MS. O'DELL: In pleurodesis? 7 THE WITNESS: For 8 pleurodesis? 9 BY MR. HEGARTY: 10 Q. No, just in women in 11 applying -- strike that. 12 MS. O'DELL: I'm sorry. 13 BY MR. HEGARTY: 14 Q. What is the volume of talc 15 that gets introduced in vivo with a 16 single application of talc to the 17 perineum? 18 MS. O'DELL: Objection to 19 form. 20 THE WITNESS: I do not know 21 the concentration. It depends on 22 the person and how they're using 23 it. It also depends on the 24 frequency that they are using it.</p>	<p>1 A. If it produces inflammation, 2 it could be used that way. As a matter 3 of relevancy, I don't think that there's 4 anyone who produces -- who uses a single 5 molecule. But in answer to your 6 question, if that single talc -- talcum 7 powder product produced inflammation, 8 then yes, it could -- it could be related 9 to biological plausibility. 10 Q. Can you cite any published 11 authority that supports that opinion? 12 A. That shows me that one 13 particle could produce inflammation? 14 Q. That could lead to cancer. 15 A. That could lead to cancer. 16 I cannot show you. It's not that I don't 17 know if it's there or not there. I just, 18 to my knowledge, I am not aware. 19 MR. HEGARTY: I'm going to 20 let Mr. Ferguson ask you some 21 questions for a little bit. Then 22 I will come back and finish up. 23 THE WITNESS: Okay. Thank 24 you.</p>

111 (Pages 438 to 441)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 442</p> <p>1 THE VIDEOGRAPHER: The time 2 is 6:00 p.m. Off the record. 3 (Short break.) 4 THE VIDEOGRAPHER: The time 5 is 6:25 p.m. Back on the record. 6 - - - 7 EXAMINATION 8 - - - 9 BY MR. FERGUSON: 10 Q. Hello, Dr. Zelikoff. 11 A. Hello. 12 Q. How are you? 13 A. Good, thank you. 14 Q. My name is Ken Ferguson, and 15 I represent Imerys, one of the parties to 16 this litigation. Do you understand that? 17 A. I understand what you said, 18 yes. 19 Q. Okay. And I'm going to have 20 some questions for you, which I'm going 21 to maybe try to go through pretty 22 quickly. But just stop me if I speed up 23 too much. I'm told that I talk slowly. 24 So maybe I won't be speeding up too much.</p>	<p style="text-align: right;">Page 444</p> <p>1 Q. Have you ever been elected 2 to membership in any of the national 3 academies, for example the National 4 Academy of Science? 5 A. I've not been elected as a 6 member, but I have served on the advisory 7 body numerous times. 8 Q. Okay. But you haven't been 9 elected to membership; is that right? 10 A. No, that is correct. 11 Q. Dr. Zelikoff, have you 12 communicated with any regulatory bodies 13 of any country regarding the issue of 14 talc and ovarian cancer that we've been 15 discussing today? 16 A. I have not. 17 Q. Have you communicated with 18 any scientific journals or publications 19 regarding talc and ovarian cancer? 20 A. I have not. 21 Q. So, can you turn to your 22 report, which is Exhibit Number 2. 23 A. I have it. 24 Q. Okay. Can you look at the</p>
<p style="text-align: right;">Page 443</p> <p>1 So first of all, let me just 2 go back briefly to your background and 3 qualifications. 4 A. Okay. 5 Q. Just briefly, do you 6 currently have a laboratory? 7 A. I do have a laboratory. 8 Q. And how many personnel do 9 you have employed in the laboratory? 10 A. Today? 11 Q. Yes, ma'am. 12 A. Today I have no one 13 employed, but three graduate students. 14 Q. And where does the funding 15 come from to support that laboratory? 16 A. It comes from the NIEHS, 17 National Institute of Environmental 18 Health Sciences from a center grant. And 19 that is the main source at this moment. 20 Q. Are you the principal 21 investigator of any extramural or 22 intramural funding at the current time? 23 A. I have -- as of today, I'm 24 not.</p>	<p style="text-align: right;">Page 445</p> <p>1 top of Page 3, please. 2 A. Yes, sir. 3 Q. And in the first full 4 paragraph on that page, it says, "My 5 opinions below are based upon my 6 experience as a toxicologist and research 7 scientist and have been reached through 8 employing the same scientific methodology 9 and rigor that I employ in my academic 10 research and professional duties." 11 Correct? 12 A. Yes, sir, I see that. 13 Q. And is that true? 14 A. That is true. 15 Q. And in your professional 16 duties and academic research, do you 17 customarily rely on peer-reviewed 18 publications in the scientific literature 19 for your research? 20 A. I do -- peer reviews, I rely 21 on. Abstracts come into play. 22 Documents. Whatever is needed, I will 23 use and cite in my publications. 24 Q. Do you customarily rely on</p>

112 (Pages 442 to 445)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 446</p> <p>1 non-peer-reviewed research that is paid 2 for by a party that has a direct 3 financial interest in the outcome of the 4 study? 5 MS. O'DELL: Object to the 6 form. 7 THE WITNESS: I go by the 8 science. I don't look at the 9 funding. Many scientists do. But 10 I think if the science is sound, I 11 look at the science -- I go by the 12 science. 13 BY MR. FERGUSON: 14 Q. Look at -- look at Page 8, 15 please. 16 A. Yes, sir. 17 Q. There in the first full 18 paragraph, you talk about recent TEM 19 testing on historic samples. 20 Do you see that sentence? 21 A. Recent TEM testing on 22 historic samples, yes. 23 Q. And you cite Longo and 24 Rigler from 2018, correct?</p>	<p style="text-align: right;">Page 448</p> <p>1 testing from the company? 2 BY MR. FERGUSON: 3 Q. And my question was, can you 4 cite any scientific articles that you've 5 authored in which you cited an 6 unpublished paper authored by an expert 7 witness who is being paid in the 8 litigation on the very topic that you're 9 writing on? 10 A. I have not had that 11 opportunity so the answer is no. 12 Q. So, you've never done that 13 in your academic writings, correct? 14 A. If you mean that -- by that, 15 that I have never cited an unpublished 16 paper authored by an expert witness? 17 Q. Yes, ma'am. 18 A. I have not done -- I have 19 not had the opportunity to do that. My 20 publications are primarily, if not 21 solely, based either on reviews or -- or 22 results that have emerged from my own 23 laboratory or a colleague's laboratory. 24 I've not had that</p>
<p style="text-align: right;">Page 447</p> <p>1 A. Mm-hmm-hmm, yes. 2 Q. Okay. And are you aware 3 that Longo and Rigler are paid expert 4 witnesses who were hired by plaintiffs' 5 counsel to testify in talc litigation, 6 including this matter you're working on? 7 A. I understand -- I understand 8 today that they are plaintiffs' 9 witnesses, experts. 10 Q. Can you cite any scientific 11 articles that you've authored in the past 12 in which you cited an unpublished paper 13 that was authored by expert witnesses 14 hired by a party in litigation on the 15 very topic that you're writing on? 16 MS. O'DELL: Objection to 17 form. 18 THE WITNESS: I relied 19 primarily on Longo. But it is, as 20 I said, or as I will say, it's a 21 Johnson & Johnson product that 22 they are testing, so in my 23 opinion, who better to know what's 24 there than someone who did the</p>	<p style="text-align: right;">Page 449</p> <p>1 opportunity. So the answer is no. 2 Q. If you look at Page 7. 3 A. Of the report? 4 Q. Of -- of your report. Yes 5 please. 6 On Page 7 you say, "In 2004, 7 a television station reported that 8 Johnson's Baby Powder had been analyzed 9 and found anthophyllite asbestos at 10 0.2 percent," correct? 11 A. I see that. That's in the 12 last paragraph. The second sentence: In 13 2004, a television station reported 14 Johnson's Baby Powder had been analyzed 15 and found anthophyllite asbestos at 16 0.2 percent, yes. 17 Q. In your previous academic 18 research, have you ever cited to stories 19 run on local television stations? 20 A. I have. 21 Q. And is that something that 22 you think shows scientific rigor? 23 MS. O'DELL: Objection to 24 form.</p>

113 (Pages 446 to 449)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 450</p> <p>1 THE WITNESS: It depends on 2 the scientific paper. And it -- 3 it depends on the source of the 4 media. 5 BY MR. FERGUSON: 6 Q. If we go to Pages 6 -- 7 A. If -- if I may add to that, 8 my recollection is that that television 9 station data was given to Johnson & 10 Johnson and it was not -- I did not cite 11 television station itself, but the -- the 12 document that was turned over to Johnson 13 & Johnson. 14 Q. If you go to Page 6 of 15 your -- 16 A. Page what, I'm sorry? 17 Q. 6. 18 A. 6? 19 Q. So on Pages 6 to 8 you cite 20 documents or other sources that you claim 21 show the presence of asbestos in talc 22 powder, correct? You -- 23 A. Pages 6 to 8? 24 Q. Yeah. Why don't you go to</p>	<p style="text-align: right;">Page 452</p> <p>1 BY MR. FERGUSON: 2 Q. And that's in your report, 3 correct? 4 A. On Page 7 at the top. 5 Q. Then you also cited 6 Dr. Blount's paper that you and 7 Mr. Hegarty talked about, correct? 8 A. I'm sorry, can you give me a 9 location? 10 Q. Sure. It's the second 11 paragraph on Page 7. 12 A. Van Gosen? 13 Q. No, the second full 14 paragraph, cosmetic and pharmaceutical 15 talc products, et cetera -- 16 A. Yes, deposition of Alice 17 Blount. Yes. 18 Q. Correct. 19 A. Sorry to interrupt. 20 Q. And Dr. Blount's paper was 21 some 30 or so years ago, correct? 22 A. 1991. 23 Q. And -- and I won't go 24 through this in detail, but Mr. Hegarty</p>
<p style="text-align: right;">Page 451</p> <p>1 the top of 7. Let me go to it 2 specifically. 3 One of the things you cite 4 to is Paoletti in 1984? 5 A. Yes, sir. 6 Q. Okay. And the Paoletti 7 study was completed -- I don't know if I 8 can do my math very well, but is that 9 36 years ago? 10 A. 36, yes. 11 Q. And you notice they have 12 assessed, according to your own report, 13 contamination in industrial and cosmetic 14 talcs, correct? 15 A. 9 of the 24 pharmaceutical 16 and cosmetic grade talcs contain 17 tremolite fibers. 18 Q. And they are from the 19 Italian market, correct? 20 A. From the Italian market. 21 MS. O'DELL: Objection to 22 form. 23 THE WITNESS: And the 24 European pharmacopeia.</p>	<p style="text-align: right;">Page 453</p> <p>1 discussed with you the fact that U.S. 2 Food and Drug Administration conducted a 3 survey of cosmetic grade raw material 4 talc and some cosmetic products 5 containing talc. And you were generally 6 aware of that, correct? 7 A. The FDA report that he -- he 8 pointed me to, yes. 9 Q. Okay. You were aware but 10 you didn't cite it, correct? 11 A. I was aware but I did not 12 cite it. 13 Q. And that came from 2010 as 14 opposed to 1984 or 1991, correct? 15 MS. O'DELL: Objection -- 16 THE WITNESS: Yes -- 17 MS. O'DELL: Excuse me. 18 Objection to form. 19 If you're going to ask a 20 specific -- about a specific date, 21 I would ask -- or a specific item 22 of that -- in that document I 23 would just ask that you show the 24 witness.</p>

114 (Pages 450 to 453)

Judith Zelikoff, Ph.D.

Page 454	Page 456
<p>1 BY MR. FERGUSON: 2 Q. Do you -- do you recall when 3 that survey was from? 4 A. The FDA was 2014. I don't 5 recall a specific. 6 Q. Well, okay. Counsel's 7 suggested it. Why don't we go ahead and 8 mark as Exhibit 37. 9 (Document marked for 10 identification as Exhibit 11 Zelikoff-37.) 12 BY MR. FERGUSON: 13 Q. And is this a document that 14 you've reviewed before? 15 A. This is a document that I 16 have reviewed, yes. 17 Q. Okay. If you look at Page 2 18 at the top of the page, in the second 19 paragraph there, it says, "The study ran 20 from September 28, 2009, to September 27, 21 2010," correct? 22 A. So I'm trying to put that 23 sentence into context. So I need to read 24 the above sentences.</p>	<p>1 Luzenac America, correct? 2 A. Correct. On the left side. 3 Q. On the left side. And on 4 the right side there are two columns that 5 say percentage asbestos by PLM and 6 percentage asbestos by TEM, correct? 7 A. I see that. 8 Q. And each of those says NAD, 9 correct? 10 A. They say NAD. 11 Q. And from your review of 12 this, do you know that NAD means no 13 asbestos detected? 14 A. Yes, I do. That means that 15 the measurements that they had and the 16 scientific -- and the sensitivities that 17 they were using at the given time, they 18 did not see any, is my interpretation of 19 that. 20 Q. According to the paper that 21 you said, NAD means no asbestos detected, 22 correct? 23 A. In this study, yes, correct. 24 Q. Let's take a look. You've</p>
Page 455	Page 457
<p>1 I assume that the study they 2 are talking about was the contract with 3 the AMA analytical services to conduct 4 the laboratory survey. 5 Is that the study that they 6 are referring to? It's unclear. 7 Q. And in your review of this 8 document, did you read that there was no 9 asbestos detected by the survey by the 10 FDA in either the cosmetic grade raw 11 material talc, or the finished product 12 cosmetic products containing talc, 13 correct? 14 A. I'm trying to find where 15 that was stated. 16 Q. If you look at Page 3? 17 A. Yes, sir. 18 Q. See where it says at the top 19 of the page, "Cosmetic raw material 20 talc"? 21 A. I see that, yes, sir. 22 Q. Correct? 23 Then there is a list of 24 suppliers called Rio Tinto Minerals</p>	<p>1 cited to IARC several times during 2 your -- in your report, correct? 3 A. Yes, I did. 4 Q. And let's look at the IARC 5 monograph 100 C, which was published in 6 2012 that I've marked as Exhibit 36. 7 (Document marked for 8 identification as Exhibit 9 Zelikoff-36.) 10 THE WITNESS: Entitled 11 Arsenic Metals, Fibrous and Dusts? 12 BY MR. FERGUSON: 13 Q. Correct. 14 And if you -- I've provided 15 you a page there, correct? 16 A. You've provided me with 17 three pages. 18 Q. Okay. And was that 19 Page 225? 20 A. 225 starts 1.5 human 21 exposure. 22 Q. Okay. If you look at the 23 top of 225. Do you have that page? 24 A. Yes, sir.</p>

115 (Pages 454 to 457)

Judith Zelikoff, Ph.D.

Page 458	Page 460
<p>1 Q. In an exposure it says, 2 "Inhalation and ingestion are the primary 3 routes of exposure to asbestos," correct? 4 MS. O'DELL: Objection to 5 form. 6 BY MR. FERGUSON: 7 Q. The very first sentence. 8 A. Mm-hmm-hmm. I cannot attest 9 to ingestion, but certainly inhalation is 10 a primary. 11 Q. But you'd agree that -- that 12 this is what IARC said, correct? 13 A. I agree that this is what's 14 in IARC, yes, 2012. 15 Q. And then there's another 16 section called exposure of the general 17 population, correct? 18 A. Yes, sir. 19 Q. And in the second paragraph 20 under that, do you see that paragraph 21 starts in studies of asbestos 22 concentrations? 23 A. I do. 24 Q. Okay. And -- and let's --</p>	<p>1 A. That's what's here, yes. 2 Q. Okay. So certainly based on 3 what IARC has said, a person could inhale 4 or ingest one or more asbestos fibers 5 from the air that they breathe, correct? 6 MS. O'DELL: Objection to 7 form. 8 THE WITNESS: Based on the 9 measurements, I can't really tell 10 where they took these, where they 11 took the measurements or how they 12 measured them, from this Page 225, 13 but based on what they are saying 14 here, they have measured in 15 outdoor air and rural locations, 16 10 fibers per cubic meter, yes. 17 As I said, if you look down 18 in that paragraph it also 19 indicates that asbestos has been 20 measured in the air in a disaster 21 such as the World Trade Center, in 22 higher concentrations by 23 Dr. Longo. 24 BY MR. FERGUSON:</p>
Page 459	Page 461
<p>1 let's read it and see if it -- you and I 2 agree on what it says. 3 "In studies of asbestos 4 concentrations in outdoor air, chrysotile 5 is the predominant fiber detected. Low 6 levels of asbestos have been measured in 7 outdoor air in rural locations; typical 8 concentration, 10 fibers per cubic meter. 9 Typical concentrations are about tenfold 10 higher in urban locations and about 1,000 11 times in close proximity to industrial 12 sources of exposure, e.g., asbestos mine 13 or factory demolition site, or improperly 14 protected asbestos-containing waste 15 site," correct? 16 A. That's what's written here, 17 yes. 18 Q. Okay. And if you go down to 19 the first sentence of the next paragraph, 20 it says, "In indoor air, for example in 21 homes, schools and other buildings, 22 measured concentrations of asbestos are 23 in the range of 30 to 6,000 fibers per 24 cubic meter," correct?</p>	<p>1 Q. And then if you look at 2 Page 229. Are you with me? 3 A. Yes, I am. 4 Q. Under B, dietary exposure. 5 A. Yes. 6 Q. It says in the first 7 sentence under that paragraph heading, 8 "The general population can be exposed to 9 asbestos in drinking water," correct? 10 A. It can happen under certain 11 conditions, yes. It says, "The general 12 population can be exposed to asbestos in 13 drinking water." 14 Q. And then below it says about 15 nine lines down, "In the U.S.A., the 16 concentration of asbestos in most 17 drinking water supplies is less than one 18 fiber per milliliter even in areas with 19 asbestos deposits or with asbestos cement 20 water supply pipes." Correct? 21 A. That's what it says here. 22 Q. And then it says, "However, 23 in some locations the concentration in 24 water may be extremely high containing 10</p>

116 (Pages 458 to 461)

Judith Zelikoff, Ph.D.

Page 462	Page 464
<p>1 to 300 million fibers per liter or even 2 higher." Correct? 3 MS. O'DELL: Objection to 4 form. 5 THE WITNESS: That's what it 6 says here. 7 BY MR. FERGUSON: 8 Q. So -- 9 A. But it's talking about -- 10 it's talking about specific locations and 11 it's also saying "can." This is not a 12 normal situation. Normal -- this is a 13 contaminated situation. 14 Q. But as IARC said, in the 15 first line we talked about, inhalation 16 and ingestion can be routes of exposure 17 to asbestos for the general population, 18 correct? 19 A. It can be. Can being the 20 keyword. 21 Q. I've got some more questions 22 that I could ask. But I'm going to pass 23 it back to Mr. Hegarty. 24 THE WITNESS: Hello again.</p>	<p>1 (Whereupon, a discussion was 2 held off the record.) 3 THE VIDEOGRAPHER: The time 4 is 6:46 p.m. Back on the record. 5 - - - 6 EXAMINATION 7 - - - 8 BY MR. HEGARTY: 9 Q. Doctor, you have done a 10 number of studies looking at inhalation 11 of particles in animal species primarily, 12 correct? 13 A. In animal species primarily, 14 but also I have done studies in cell 15 culture, yes. 16 Q. In any of the studies where 17 you have looked at inhalation of 18 particles in animals, have you reported 19 finding those particles in the ovaries? 20 A. I did not look in the 21 ovaries. 22 Q. So have you ever evaluated 23 the ovaries in any study that you have 24 done?</p>
Page 463	Page 465
<p>1 MR. HEGARTY: Hello again. 2 MS. O'DELL: So are you 3 finished with your questions? 4 MR. FERGUSON: I have other 5 questions that I could ask. But 6 I'm trying to share the limited 7 time that we have. 8 MS. O'DELL: I understand. 9 I'm just trying -- typically we 10 don't go back and forth between 11 the parties. The plaintiffs' side 12 has had time to ask questions. So 13 I guess I'm just trying to figure 14 out what y'all are doing. 15 MR. HEGARTY: Let's go off 16 the record real quick and have a 17 discussion. Because what we 18 planned to do, I took the time 19 that Ken was using to organize my 20 notes and to finish up the 21 remaining time. 22 Go off the record. 23 THE VIDEOGRAPHER: The time 24 is 6:45 p.m. Off the record.</p>	<p>1 A. I have evaluated -- in the 2 cadmium particle studies, we looked for 3 the soluble ions, that's what we 4 measured, using atomic absorption and ICT 5 mass spec. And we did find cadmium -- 6 sorry. Sorry. We did find soluble 7 cadmium ions in the -- in the tissue -- 8 in the ovaries. 9 Q. Of what animal? 10 A. Mice. 11 Q. So there's nothing unique 12 with regard to talc in your opinion with 13 regard to its ability to transport within 14 the body, correct? 15 MS. O'DELL: Object to the 16 form. 17 THE WITNESS: Talc is a 18 fiber and will transport as a 19 fiber. It's also hydrophilic so 20 it will require some time for the 21 other products within the talc 22 molecule to be released. I am not 23 sure if I answered your question. 24 BY MR. HEGARTY:</p>

117 (Pages 462 to 465)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 466</p> <p>1 Q. What about platy talc? Will 2 platy talc travel in the body as cadmium 3 would travel? 4 A. Cadmium is a -- has traveled 5 as a soluble ion. So platy talc -- 6 neither platy talc nor asbestos will 7 travel as a soluble ion. They are 8 fibers. 9 Q. Have you done -- 10 A. They are -- I'm sorry, platy 11 talc is a crystal with different forms. 12 But my understanding is that platy talc 13 can fracture and also form fragments and 14 they could travel, given their size. 15 Q. Could they travel as cadmium 16 has traveled in your studies, if that 17 happens? 18 A. No, in -- in my studies we 19 did not measure -- we did not look for 20 the presence of the particle -- of the 21 nanoparticle in the tissues. We measured 22 for the metal in those tissues. 23 So we are of the opinion 24 that it was the soluble ion that was</p>	<p style="text-align: right;">Page 468</p> <p>1 to reach -- it can reach the deep lung, 2 if it's five micrometers or smaller. 3 And -- 4 Q. Go ahead. 5 A. And in that case since it's 6 not disposed of through the mucociliary 7 escalator, then it is in the other parts 8 of the lung and it can reach the 9 capillaries. And once it gets into the 10 bloodstream, it can be transported. 11 Certain particles have predilections for 12 where they go. 13 Q. When you say it can be 14 transported, does that include to the 15 ovaries? 16 A. Are you asking specifically 17 about talc or particles in general? 18 Q. Particles in general that 19 meet the size standards that you just 20 referenced of getting into the deep lung? 21 A. Mm-hmm-hmm. There's no 22 reason not to believe that it couldn't 23 get into the ovaries. 24 Q. Did you examine, for</p>
<p style="text-align: right;">Page 467</p> <p>1 released, and in this case, I know of no 2 studies off the top of my head that 3 measured how much of the other components 4 were released. 5 Q. Can any particle that's 6 inhaled reach the ovary? 7 A. If it -- if it meets certain 8 size constituents. There's no reason why 9 a particle could not reach the ovary or 10 the kidney or the liver or -- under 11 proper circumstances. 12 Q. Is there a certain size 13 limitation? 14 A. Well, something that's 15 inhaled, is that what you're talking 16 about? 17 Q. Yes. 18 A. Something that's inhaled, if 19 it's 10 micrometers or greater, it's 20 going to be caught in the upper airways 21 and probably dismissed through the 22 mucociliary escalator. If it's of a 23 smaller nature, then depending on where 24 the impaction is for the lung, it's going</p>	<p style="text-align: right;">Page 469</p> <p>1 purposes of your biological plausibility 2 opinion, all the studies looking at 3 NSAIDs and use of aspirin in women with 4 ovarian cancer? 5 A. I looked at several studies. 6 I'm sure I -- 7 (Document marked for 8 identification as Exhibit 9 Zelikoff-38.) 10 BY MR. HEGARTY: 11 Q. I'm going to show you what I 12 marked as Exhibit 38, which is a study 13 that you cited by Wu 2009. 14 A. Actually, it's Merritt. 15 Q. I'm sorry. It's Merritt 16 2008, correct? 17 A. Yes. And let me find it in 18 my report. 19 Q. You cite it on Page 26. 20 Above the italicized paragraph -- 21 italicized paragraph at the bottom. 22 A. I see it. "At high 23 concentrations with chronic exposure, 24 reactive oxygen species, known as ROS,</p>

118 (Pages 466 to 469)

Judith Zelikoff, Ph.D.

Page 470	Page 472
<p>1 can damage cellular macromolecules and 2 contribute to neoplastic transformation 3 and/or tumor growth. Other likely 4 manifestations of talc." That's the 5 paragraph that you're referring to. 6 Q. You do agree that a relevant 7 body of literature is whether NSAIDs or 8 aspirin have an effect on ovarian cancer 9 risk, if you're considering inflammation 10 as a biologically plausibility mechanism. 11 A. NSAIDs being an -- one type 12 of anti-inflammatory, it could reduce 13 oxidative stress, yes, to different 14 degrees. 15 Q. If you look at the abstract 16 on the first page of the Merritt paper. 17 A. Yes. 18 Q. At the very end, they say, 19 "We conclude that on balance chronic 20 inflammation does not play a major role 21 in the development of ovarian cancer." 22 Do you see where I'm 23 reading? 24 A. I'm seeing the last</p>	<p>1 on Page 21 of your report? 2 A. Can you direct me to it? 3 Oh, I see it. Second paragraph. "Wu, et 4 al, 2009, performed a study to determine 5 the role of talc in the development of 6 ovarian cancer considering the history of 7 endometriosis." 8 Q. If you look at the abstract 9 of the Wu paper, about two-thirds of the 10 way down, it reads, "Contrary to the 11 hypothesis." 12 Do you see that start of the 13 sentence? 14 A. I do. 15 Q. "Contrary to the hypothesis 16 that risk of ovarian cancer may be 17 reduced by use of NSAIDs, risk increased 18 with increasing the frequency in years of 19 NSAID use," citing the relative risk, the 20 confidence intervals. "This was 21 consistent across types of incident." 22 Do you see where I'm 23 reading? 24 A. I do see where you're</p>
Page 471	Page 473
<p>1 sentence, yes. 2 Q. Do you agree with that 3 statement in general? 4 A. I do not agree with that 5 statement. That's -- my biological 6 plausibility is associated with the 7 oxidative stress and inflammation. Also 8 this paper was written in 2008. 9 Q. Did you cite that finding 10 that I just read anywhere in your report? 11 A. I cite Merritt. 12 Q. Do you cite for the reader 13 of your report the statement that I just 14 read in the abstract? 15 A. Not to my recollection. 16 (Document marked for 17 identification as Exhibit 18 Zelikoff-39.) 19 BY MR. HEGARTY: 20 Q. I'm showing you what I've 21 marked as Exhibit Number 39. That is the 22 Wu paper. 23 A. Mm-hmm-hmm. 24 Q. You cite the Wu paper over</p>	<p>1 reading. 2 Q. That finding is inconsistent 3 with inflammation as a mechanism by which 4 ovarian cancer can occur, correct? 5 MS. O'DELL: Object to the 6 form. 7 THE WITNESS: This -- NSAIDs 8 are known as antioxidants. And 9 yes, that's true, but there are 10 other antioxidants from other 11 papers that demonstrate that it 12 does indeed reduce inflammation. 13 BY MR. HEGARTY: 14 Q. Well, did you cite the 15 finding of the Wu paper with regard to 16 its data on NSAID use and the risk of 17 ovarian cancer? 18 A. I did have a section, to my 19 recollection, on the papers of Wu and 20 Merritt. 21 Q. Well, in the section that I 22 was referring to, in the middle of the 23 paragraph on Page 21, middle paragraph on 24 Page 21, you don't cite that study's</p>

119 (Pages 470 to 473)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 474</p> <p>1 findings as to NSAIDs and risk of ovarian 2 cancer, correct? 3 A. I do not cite that 4 particular sentence, no. 5 Q. Over on Page 23, you refer 6 to the Shukla study? 7 A. Yes, sir. 8 Q. That's second to the last 9 paragraph? 10 A. "In a molecular cell study 11 by Shukla"? 12 Q. Yes. The -- strike that. 13 Gene expressions like those 14 measured in the Shukla study occur 15 everyday in everyone, correct? 16 MS. O'DELL: Objection to 17 form. 18 THE WITNESS: There are 19 changes in genes per day. But 20 I'm -- I'm not -- I do not know 21 nor do I have knowledge of whether 22 the gene for ATF3 or ATF1 is 23 changed everyday by no exposure. 24 BY MR. HEGARTY:</p>	<p style="text-align: right;">Page 476</p> <p>1 proinflammatory cytokines and oxidase, 2 yes. 3 Q. Is there any study that 4 sites the clinical significance of ATF as 5 it relates to ovarian cancer risk? 6 MS. O'DELL: Object to the 7 form. 8 THE WITNESS: No study that 9 I'm currently aware of. But there 10 are many studies that link ATF 11 upregulation to inflammation and 12 then inflammation to -- in the 13 process of carcinogenesis, both 14 progression and initiation. 15 BY MR. HEGARTY: 16 Q. If you turn over to the 17 second to the last page of your report, 18 Page 27. 19 In Paragraph 3, you say that 20 exposure to talcs -- 21 A. Excuse me, Number 3? 22 Q. I called it Paragraph 3. 23 You can call it Number 3. 24 A. It's listed as Number 3.</p>
<p style="text-align: right;">Page 475</p> <p>1 Q. But the -- the fact of gene 2 expression is not a -- strike that. 3 The fact that gene 4 expression occurs does not mean that 5 cancer will occur, correct? 6 A. No. My role is to look for 7 biological plausibility, and when you 8 have a transcription factor which is so 9 well immersed into oxidation and reactive 10 oxygen species and inflammation, and I 11 would say that changes or upregulation of 12 the -- of the ATF gene certainly is 13 linked with inflammation. 14 Q. Can you cite for me any 15 studies that have used measurements of 16 level -- of the levels of ATF3 to assess 17 ovarian cancer risk? 18 A. I cannot cite those studies 19 to you, but again, going back to 20 biological plausibility, I can tell you 21 that this gene is extremely important in 22 growth factors and proinflammatory 23 cytokines. So an upregulation is going 24 to lead to the production of</p>	<p style="text-align: right;">Page 477</p> <p>1 Q. 3. You state that "exposure 2 to talcum powder products causes an 3 inflammatory tissue reaction which may 4 result in the following," and then you 5 list -- 6 A. Elevation. 7 Q. -- a number of -- of events 8 that you label as A through F -- I'm 9 sorry, A through G carrying over to the 10 top of the next page. 11 A. I see that, thank you. 12 Q. Can you cite for me any 13 studies showing any of that activity in 14 women using talc on the perineum? 15 MS. O'DELL: Object to the 16 form. 17 THE WITNESS: If I can 18 recall the Health Canada study, I 19 think they looked at -- they also 20 included inflammatory responses 21 that are seen in some of their 22 meta-analysis. 23 BY MR. HEGARTY: 24 Q. Well, the Health Canada</p>

120 (Pages 474 to 477)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 478</p> <p>1 study, the Taher study, was a 2 meta-analysis, correct? 3 A. Yes, correct. 4 Q. Can you cite for me any 5 studies reporting that -- reporting these 6 events occurring in women using talc on 7 the perineum? 8 MS. O'DELL: Object to the 9 form. 10 THE WITNESS: If you're 11 asking me if gene alterations or 12 mutations or the level of 13 apoptosis has been measured in any 14 women exposed, no, I do not recall 15 that. 16 BY MR. HEGARTY: 17 Q. Have any of the processes -- 18 A. Excuse me. If I may add. 19 But inflammatory markers have been looked 20 at in women with ovarian cancer and they 21 are elevated. 22 Q. And my question, as you'll 23 recall, is specific to talc users, 24 correct?</p>	<p style="text-align: right;">Page 480</p> <p>1 as exhibit -- Exhibits 40 through 2 48 -- I'm sorry, 47 -- the 3 notebooks that had been produced 4 for purposes of the deposition 5 here today. 6 (Documents marked for 7 identification as Exhibits 8 Zelikoff-40 through 47.) 9 BY MR. HEGARTY: 10 Q. Over on Page 23, you -- 11 A. Of my report? 12 Q. Of your report, with regard 13 to the Shukla study. 14 I'm sorry, over on Page 26. 15 You cite again the Shukla study. Do you 16 see that where -- do you see where you 17 say "nonfibrous talc at low in vitro 18 exposure concentrations caused increased 19 expression of transcription factors 20 associated with the inflammatory process 21 in a time and dose dependent manner"? 22 A. I'm sorry, I'm not clear 23 on -- 24 Q. Middle of the second full</p>
<p style="text-align: right;">Page 479</p> <p>1 MS. O'DELL: Objection to 2 form. 3 THE WITNESS: Talc -- yes, 4 talc products. 5 BY MR. HEGARTY: 6 Q. Can you -- can you cite to 7 me any studies showing elevations of any 8 of these processes in women using talc? 9 MS. O'DELL: Object to the 10 form. 11 THE WITNESS: Well, 12 neoplastic transformation and 13 proliferation is clearly seen 14 in -- obviously if there's a 15 variant answer, you've had 16 neoplastic transformation 17 proliferation. 18 BY MR. HEGARTY: 19 Q. Well, my question is 20 specific to women using talc prediagnosis 21 of ovarian cancer. 22 A. I see. No, sir. 23 MR. HEGARTY: For purposes 24 of the deposition, we want to mark</p>	<p style="text-align: right;">Page 481</p> <p>1 paragraph. 2 A. Not -- after the Mori 3 citation? 4 Q. Yes. 5 A. "Nonfibrous talc at low in 6 vitro exposure concentrations caused 7 increased expression of transcription 8 factors associated with the inflammatory 9 process in a time and dose dependent 10 manner." Yes, I see that. 11 Q. What did you mean by say -- 12 by time and dose manner? 13 A. May I see the paper? 14 (Document marked for 15 identification as Exhibit 16 Zelikoff-48.) 17 BY MR. HEGARTY: 18 Q. Marking as Exhibit 49 -- 48 19 that paper. 20 A. Thank you. 21 MR. TISI: We are at seven 22 hours by the way. 23 MS. O'DELL: We are at seven 24 hours?</p>

121 (Pages 478 to 481)

Judith Zelikoff, Ph.D.

Page 482	Page 484
<p>1 MR. TISI: Yes, we are.</p> <p>2 MS. O'DELL: We're at seven</p> <p>3 hours, Mark.</p> <p>4 MR. HEGARTY: Okay. Are you</p> <p>5 going to instruct her not to</p> <p>6 answer that question?</p> <p>7 MS. O'DELL: Well, the</p> <p>8 federal rules limit this</p> <p>9 deposition to seven hours and --</p> <p>10 MR. HEGARTY: No, I</p> <p>11 understand, but I also remember a</p> <p>12 deposition where I think I let</p> <p>13 Chris go over about two or</p> <p>14 three minutes.</p> <p>15 MR. TISI: Yeah, but you are</p> <p>16 using a whole new exhibit.</p> <p>17 MS. O'DELL: You just marked</p> <p>18 it --</p> <p>19 MR. HEGARTY: I just want to</p> <p>20 make sure that was --</p> <p>21 MR. TISI: Are you going to</p> <p>22 suggest --</p> <p>23 MR. HEGARTY: No, I just</p> <p>24 want to know if that -- if you</p>	<p>1 want to let her answer or not.</p> <p>2 It's simply up to you. If you say</p> <p>3 we're done, then I will -- I'm not</p> <p>4 going to dispute it.</p> <p>5 MS. O'DELL: We are -- I</p> <p>6 will let you answer that question.</p> <p>7 But after that, we're -- we're</p> <p>8 done.</p> <p>9 MR. HEGARTY: Okay. Thank</p> <p>10 you.</p> <p>11 MS. O'DELL: Do you recall</p> <p>12 the question, Dr. Zelikoff?</p> <p>13 THE WITNESS: Yes. The</p> <p>14 question is -- what -- I'll repeat</p> <p>15 it from here.</p> <p>16 What did I mean by a time</p> <p>17 and dose dependent manner?</p> <p>18 BY MR. HEGARTY:</p> <p>19 Q. Yes.</p> <p>20 A. In the Shukla study?</p> <p>21 Q. Correct.</p> <p>22 A. Well, if we look at Figure 2</p> <p>23 concerning cell viability in the Shukla</p> <p>24 paper, Page 117.</p>
Page 483	Page 485
<p>1 want to end the deposition for me</p> <p>2 right here?</p> <p>3 MR. TISI: That was a fact</p> <p>4 witness, as you know.</p> <p>5 I leave it to Leigh. If</p> <p>6 we're going to -- if we're going</p> <p>7 to have this rule, we need to kind</p> <p>8 of be consistent with it.</p> <p>9 MR. HEGARTY: No, I'm not</p> <p>10 looking to apply another rule.</p> <p>11 Just tell me whether you'll let</p> <p>12 her answer the question or if the</p> <p>13 time -- because the time is up,</p> <p>14 that question will not be</p> <p>15 answered.</p> <p>16 MS. O'DELL: The time -- the</p> <p>17 time is up. What is your -- what</p> <p>18 was your question?</p> <p>19 MR. HEGARTY: My question</p> <p>20 was, "What do you mean where you</p> <p>21 say time and dose dependent</p> <p>22 manner." But I'm not going to</p> <p>23 insist on any applicable rule.</p> <p>24 I'll let you decide whether you</p>	<p>1 So we can see, I'm trying to</p> <p>2 find the exact one that I want to refer</p> <p>3 to. Figure A, one can see that in terms</p> <p>4 of the concentration and over time, that</p> <p>5 the number -- total number of viable</p> <p>6 cells were altered. And in Figure 2, 15</p> <p>7 and 75 -- no, scratch Figure 2, sorry.</p> <p>8 So on Page 118, in looking</p> <p>9 at number of genes that were</p> <p>10 significantly changed, we can see looking</p> <p>11 at the concentration -- and this is for</p> <p>12 asbestos -- there was a change in effect</p> <p>13 in asbestos. If one looks at -- I think</p> <p>14 that's it. That's what I meant.</p> <p>15 MR. HEGARTY: Okay. Thank</p> <p>16 you.</p> <p>17 MS. O'DELL: Off the record.</p> <p>18 THE VIDEOGRAPHER: The time</p> <p>19 is 7:07 p.m. Off the record.</p> <p>20 (Short break.)</p> <p>21 THE VIDEOGRAPHER: We are</p> <p>22 back on the record. The time is</p> <p>23 7:30 p.m.</p> <p>24 - - -</p>

122 (Pages 482 to 485)

Judith Zelikoff, Ph.D.

Page 486	Page 488
<p>1 EXAMINATION</p> <p>2 - - -</p> <p>3 BY MS. O'DELL:</p> <p>4 Q. Dr. Zelikoff, I have a few</p> <p>5 follow-up questions for you.</p> <p>6 Prior to your involvement in</p> <p>7 litigation, this litigation, did you hold</p> <p>8 the opinion that inflammation causes</p> <p>9 cancer?</p> <p>10 MR. HEGARTY: Objection to</p> <p>11 form.</p> <p>12 THE WITNESS: Yes. I held</p> <p>13 the opinion for a very long time</p> <p>14 that inflammation causes cancer.</p> <p>15 BY MS. O'DELL:</p> <p>16 Q. And in terms of your</p> <p>17 knowledge and opinion prior to your</p> <p>18 involvement in the litigation, did you --</p> <p>19 did you have an opinion regarding the</p> <p>20 role of oxidative stress in the</p> <p>21 development of cancer?</p> <p>22 A. Yes, I did. My opinion was</p> <p>23 that oxidative stress was closely</p> <p>24 involved with the causation of cancer.</p>	<p>1 A. I relied on his report, yes.</p> <p>2 Q. And did Dr. Crowley conclude</p> <p>3 that the chemicals involved in the</p> <p>4 fragrances for both Johnson & Johnson's</p> <p>5 Baby Powder and Shower to Shower may</p> <p>6 contribute to the inflammatory response,</p> <p>7 toxicity and potential carcinogenicity of</p> <p>8 Johnson & Johnson's talcum powder</p> <p>9 products?</p> <p>10 MR. HEGARTY: Objection to</p> <p>11 form.</p> <p>12 THE WITNESS: Yes. I concur</p> <p>13 with that whole opinion.</p> <p>14 BY MS. O'DELL:</p> <p>15 Q. And in fact, that's the</p> <p>16 specific opinion he included in his</p> <p>17 report that you relied on?</p> <p>18 A. Yes, that's correct.</p> <p>19 MR. HEGARTY: Objection to</p> <p>20 form.</p> <p>21 BY MS. O'DELL:</p> <p>22 Q. And so if another expert was</p> <p>23 also relying on Dr. Crowley's analysis,</p> <p>24 it wouldn't be surprising that the same</p>
Page 487	Page 489
<p>1 Q. So to the degree that your</p> <p>2 work in this case addressed new</p> <p>3 considerations, were those considerations</p> <p>4 primarily focused on talc and its ability</p> <p>5 to cause inflammation and oxidative</p> <p>6 stress?</p> <p>7 MR. HEGARTY: Objection to</p> <p>8 form.</p> <p>9 THE WITNESS: That is</p> <p>10 correct.</p> <p>11 BY MS. O'DELL:</p> <p>12 Q. Can you -- if I could ask</p> <p>13 you to take your report. I think it's</p> <p>14 right to your left. I'm going to ask</p> <p>15 you -- if you'll turn to Page 12. Do you</p> <p>16 see that? The subsection involving</p> <p>17 fragrance, fragrance chemicals?</p> <p>18 A. Yeah. C, fragrances.</p> <p>19 Q. And did you rely on</p> <p>20 Dr. Crowley's report and his review of</p> <p>21 the relevant literature and other</p> <p>22 information regarding the chemicals that</p> <p>23 are included in the fragrance for Baby</p> <p>24 Powder and Shower to Shower?</p>	<p>1 wording was used?</p> <p>2 MR. HEGARTY: Objection to</p> <p>3 form.</p> <p>4 THE WITNESS: Absolutely</p> <p>5 not.</p> <p>6 BY MS. O'DELL:</p> <p>7 Q. Let me ask you other</p> <p>8 questions about the general principles in</p> <p>9 your report. I think you testified, you</p> <p>10 were asked a number of questions about</p> <p>11 general principals. And in your</p> <p>12 judgment, is it generally accepted to --</p> <p>13 to use common phrasing for general</p> <p>14 principles in scientific publications?</p> <p>15 A. Yes.</p> <p>16 MR. HEGARTY: Objection to</p> <p>17 form.</p> <p>18 THE WITNESS: I answered</p> <p>19 that question before, and yes.</p> <p>20 Common, well-publicized,</p> <p>21 well-established concepts, yes.</p> <p>22 BY MS. O'DELL:</p> <p>23 Q. You were asked during the</p> <p>24 early part of the day certain questions</p>

123 (Pages 486 to 489)

Judith Zelikoff, Ph.D.

Page 490	Page 492
<p>1 about whether you were an expert in areas 2 such as talc and inflammation? 3 A. Yes. 4 Q. And I think if you recall 5 the response you answered you were not 6 classified as an expert. What did you 7 mean by that? 8 MR. HEGARTY: Objection to 9 form. 10 THE WITNESS: What I meant 11 was in terms of legal, whether -- 12 one of the questions that arose 13 was, in the past, have I been 14 listed as an expert in other 15 cases. And so I followed that 16 line of thought and thought that 17 we were still talking about 18 litigation and formal declaration 19 as an expert in that area. 20 BY MS. O'DELL: 21 Q. Are you an expert in the 22 toxicological effects of minerals on 23 the -- on humans? 24 MR. HEGARTY: Objection to</p>	<p>1 A. My numerous publications in 2 that area of metal toxicology that I've 3 been doing for many, many, many years. 4 Q. And in addition to your 5 training, experience, do you also make 6 those statements based on your review of 7 the available scientific and medical 8 literature? 9 A. In regards to metals? 10 Q. In all the environmental 11 exposures we've just discussed? 12 A. Yes. I rely on 13 literature -- 14 Q. You were asked questions -- 15 A. -- as well as my own 16 scientific research. 17 Q. Excuse me. I didn't mean to 18 cut you off, Doctor. 19 You were asked questions 20 about whether there were any studies or 21 evidence that you relied on involving 22 Johnson's Baby Powder. 23 Do you recall that? 24 A. I do recall that question,</p>
Page 491	Page 493
<p>1 form. 2 THE WITNESS: I'm expert in 3 toxicology of environmental 4 chemicals, including mixtures, 5 including fibers, including 6 particles, including talc. 7 BY MS. O'DELL: 8 Q. And would that -- would that 9 also include -- when you said fibers, 10 would that also include asbestos and 11 fibrous talc? 12 MR. HEGARTY: Objection to 13 form. 14 THE WITNESS: Yes. 15 BY MS. O'DELL: 16 Q. Are you an expert in the 17 toxicological effects of heavy metals on 18 the humans? 19 MR. HEGARTY: Objection to 20 form. 21 THE WITNESS: Yes, I am. 22 BY MS. O'DELL: 23 Q. And what do you base that 24 statement on?</p>	<p>1 yes. 2 Q. And do the -- strike that 3 and start again. 4 Did Dr. Saed in the testing 5 that was done and reported in not only 6 the abstracts but also his manuscript, 7 involve Johnson's Baby Powder? 8 MR. HEGARTY: Objection to 9 form. 10 THE WITNESS: Yes. 11 Dr. Saed's did. Thank you for 12 reminding me. 13 BY MS. O'DELL: 14 Q. Was Dr. Longo and Rigler's 15 testing of historical samples of talcum 16 powder products produced in this 17 litigation, including Johnson's Baby 18 Powder and Shower to Shower? 19 A. Dr. Longo stated he did use 20 products over time from Johnson & Johnson 21 talcum powders. 22 Q. And was the evidence that 23 was presented in Hopkins Exhibit 28, did 24 it involve Johnson's talcum powder</p>

124 (Pages 490 to 493)

Judith Zelikoff, Ph.D.

Page 494	Page 496
<p>1 products?</p> <p>2 A. Yes, it did.</p> <p>3 Q. Was evidence that you relied</p> <p>4 on in the form of Pier Exhibit 47, did</p> <p>5 those also involve talc that was taken</p> <p>6 from sources used to supply Johnson's</p> <p>7 talcum powder products?</p> <p>8 MR. SILVER: Objection to</p> <p>9 form.</p> <p>10 MR. HEGARTY: Objection to</p> <p>11 form.</p> <p>12 THE WITNESS: Dr. Pier?</p> <p>13 BY MS. O'DELL:</p> <p>14 Q. Yes.</p> <p>15 A. To my recollection, yes. If</p> <p>16 you'd like, I can look at the paper and</p> <p>17 confirm that.</p> <p>18 Q. Let me ask you about</p> <p>19 Dr. Blount. You were asked previously</p> <p>20 about her publication in 1991.</p> <p>21 Did Dr. Blount test</p> <p>22 Johnson's Baby Powder?</p> <p>23 A. Yes. But again, if I looked</p> <p>24 at the reference I could give you -- I</p>	<p>1 go.</p> <p>2 BY MS. O'DELL:</p> <p>3 Q. Did the FDA conclude in</p> <p>4 Exhibit 37 that -- well, let me just ask</p> <p>5 the question this way.</p> <p>6 If you'll turn to Page 2 of</p> <p>7 Exhibit 37, what was the FDA's conclusion</p> <p>8 regarding the testing that they had</p> <p>9 performed on the cosmetic powders?</p> <p>10 Doctor, I'll direct you to</p> <p>11 the second-to-the-last paragraph at the</p> <p>12 bottom of the page, the middle sentence.</p> <p>13 Do you see that, "Beginning for these</p> <p>14 reasons"?</p> <p>15 A. Yes, I see that.</p> <p>16 Q. And what was the FDA's</p> <p>17 conclusion?</p> <p>18 A. "For these reasons, while</p> <p>19 FDA finds these results informative, they</p> <p>20 do not prove that most or all talc or</p> <p>21 talc-containing cosmetic products that</p> <p>22 are currently or currently marketed in</p> <p>23 the United States are likely to be free</p> <p>24 of asbestos contamination."</p>
Page 495	Page 497
<p>1 could give you specifics.</p> <p>2 Q. Okay. And do you recall</p> <p>3 that that -- did -- let me just ask it</p> <p>4 this way.</p> <p>5 Did Dr. Blount find that</p> <p>6 there was asbestos in the Johnson's Baby</p> <p>7 Powder samples that she tested?</p> <p>8 A. Yes. To my recollection,</p> <p>9 she did, yes.</p> <p>10 Q. You were asked about some</p> <p>11 testing that had been done by the FDA on</p> <p>12 certain cosmetic powders. Do you</p> <p>13 remember that? It was Exhibit 37.</p> <p>14 MS. O'DELL: And is that in</p> <p>15 the bottom of that stack, 37?</p> <p>16 Thanks, Mark. If you'll</p> <p>17 hand those to me. I appreciate</p> <p>18 it.</p> <p>19 THE WITNESS: Sorry. My</p> <p>20 microphone.</p> <p>21 MS. O'DELL: Oh, did it come</p> <p>22 off?</p> <p>23 THE VIDEOGRAPHER: Raise it</p> <p>24 up as high as possible. There you</p>	<p>1 Q. You were also asked a number</p> <p>2 of questions regarding the FDA response</p> <p>3 to Dr. Epstein's letter in April of 2014,</p> <p>4 Exhibit 33.</p> <p>5 Do you recall those</p> <p>6 questions?</p> <p>7 A. I recall that questions were</p> <p>8 asked in this regard, yes.</p> <p>9 Q. While at this point in the</p> <p>10 day, I wouldn't expect you to recall the</p> <p>11 specific question, but you recall those</p> <p>12 general discussions?</p> <p>13 A. Yes, I do.</p> <p>14 Q. All right. Let me ask you,</p> <p>15 if you wouldn't mind, to turn to Page 3</p> <p>16 of -- of Exhibit 33.</p> <p>17 And the second paragraph.</p> <p>18 A. Starting, "The survey</p> <p>19 found"?</p> <p>20 Q. Yes. Yes, ma'am.</p> <p>21 And as of April 2014, was it</p> <p>22 the FDA's conclusion that their testing</p> <p>23 results did not prove that</p> <p>24 talc-containing cosmetic powders</p>

125 (Pages 494 to 497)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 498</p> <p>1 currently marketed in the U.S. are free 2 of asbestos contamination? 3 MR. HEGARTY: Objection to 4 form. 5 THE WITNESS: Yes. I can 6 read the sentence, "While FDA 7 found this data informative, the 8 results were limited by the fact 9 that only four suppliers submitted 10 samples and the number of products 11 used. They do not prove that all 12 talc containing cosmetic products 13 currently marketed in the United 14 States are free of asbestos 15 contamination." 16 BY MS. O'DELL: 17 Q. Okay. While we are on this 18 Exhibit 33, Doctor, if you'll turn to 19 Page 5 of the exhibit. About two-thirds 20 of the way down, the paragraph beginning, 21 "While." 22 A. "While there exists no 23 direct proof?" 24 Q. Yes. And would you mind</p>	<p style="text-align: right;">Page 500</p> <p>1 causing ovarian cancer? 2 MR. HEGARTY: Objection to 3 form. 4 THE WITNESS: They are 5 consistent with my opinion, yes. 6 BY MS. O'DELL: 7 Q. Let me ask you if you would, 8 Doctor, to -- I'll do it for you. 9 Because it was marked here. 10 I'm going to hand to you the 11 Health Canada draft screening assessment 12 that was marked previously as Exhibit 9. 13 A. I see it. 14 Q. And let me ask you if you 15 would please, Doctor, first, did you 16 submit your report in this case prior to 17 Health Canada issuing the draft causal 18 assessment? 19 A. I submitted my -- my final 20 report November 15th or 16th. I'm not 21 quite clear on the date. And received 22 this or saw it for the first time in 23 January. So it did not go into my -- it 24 was not cited in my report and was not</p>
<p style="text-align: right;">Page 499</p> <p>1 reading, you know, the -- the -- those 2 first two sentences of that paragraph, 3 please? 4 A. "While there exists no 5 direct proof of talc and ovarian 6 carcinogenesis, the potential for 7 particulates to migrate from the 8 peritoneum" -- "the perineum and vagina 9 to the peritoneal cavity is 10 indisputable." 11 Q. And then if you'll read the 12 next sentence? 13 A. "It is, therefore, plausible 14 that perineal talc and other particulate 15 that reaches the endometrial cavity, the 16 fallopian tubes and ovaries and the 17 peritoneum may elicit a foreign body-type 18 reaction and an inflammatory response 19 that in some exposed women may progress 20 to epithelial cancers." 21 Q. And are those statements 22 written by the FDA consistent with your 23 opinions regarding the biologic 24 plausibility of talcum powder products</p>	<p style="text-align: right;">Page 501</p> <p>1 reviewed for my report. 2 Q. And by virtue of the fact 3 that came out after your report, did -- 4 did the health -- strike that and start 5 again. 6 Did the Health Canada 7 assessment inform your opinions in this 8 case? 9 A. It -- it could not have 10 informed my opinion that's written out in 11 the report. It was compelling evidence 12 that helped support the opinion that I 13 came to. 14 Q. Did it confirm your 15 opinions? 16 MR. HEGARTY: Objection to 17 form. 18 THE WITNESS: Yes. It 19 confirmed my opinions on many 20 lines, including methodology. 21 BY MS. O'DELL: 22 Q. If you'll look at Page 18 of 23 the assessment. 24 A. Yes. I see it.</p>

126 (Pages 498 to 501)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 502</p> <p>1 Q. And looking at the 2 literature that is cited in this section, 3 did you cite in support of your opinions 4 Keskin 2009? 5 A. Keskin 2009, yes. 6 Q. And did you -- of course we 7 talked about it before. You cited 8 Penninkilampi 2018? 9 A. Yes, I did. 10 Q. And did you cite other 11 references included in the mode of action 12 discussion that was undertaken by Health 13 Canada on Pages 18, 19 and, you know, 20 14 of the Health Canada assessment? 15 A. Yes, I did. Do you want me 16 to tell you which ones? 17 Q. Just give us a few. Just 18 give us a few. 19 A. Henderson 1971. These are 20 the ones that come to mind readily. 21 Edelstam 1997. Egli and Newton 1961. De 22 Boer in 1972. Venter and Iturralde, 23 1979. Heller 1996. Cramer in 2007. 24 Would you like me to go on?</p>	<p style="text-align: right;">Page 504</p> <p>1 mechanism for the cause of cancer? 2 MR. HEGARTY: Objection to 3 form. 4 THE WITNESS: Biological 5 plausibility. 6 BY MS. O'DELL: 7 Q. They -- let me ask a better 8 question. Did they -- did they discuss 9 chronic inflammation, inflammation as a 10 biologically plausible mechanism for the 11 development of ovarian cancer? 12 A. Yes, they did. 13 Q. Did they discuss the role of 14 reactive oxygen species as part of the 15 biologically plausible mechanism of talc 16 in the development of ovarian cancer? 17 MR. HEGARTY: Objection to 18 form. 19 THE WITNESS: Oxidative 20 stress, yes. Yeah. React -- ROS. 21 Oxidative stress. 22 May I give the statement? 23 BY MS. O'DELL: 24 Q. Yes.</p>
<p style="text-align: right;">Page 503</p> <p>1 Q. So it's fair to say that 2 many of the references that you read, 3 reviewed, relied on in your report are 4 some of the same studies that Health 5 Canada relied on in their causal 6 assessment? 7 MR. HEGARTY: Objection to 8 form. 9 THE WITNESS: Yes. This was 10 very validating for my -- my 11 report in my opinion. 12 BY MS. O'DELL: 13 Q. Were you aware of the -- of 14 the assessment prior to it being issued 15 to the public? 16 A. Not at all. It was -- it 17 came out in late 2018, in December. 18 Q. In the assessment that was 19 undertaken by Health Canada, did they 20 assign any numerical weights in the 21 causal assessment to certain studies? 22 A. No, they do not. 23 Q. Did they discuss 24 inflammation as a sort of recognized</p>	<p style="text-align: right;">Page 505</p> <p>1 A. With respect to talc, 2 specifically local chronic irritation 3 leading to inflammatory response is one 4 possible mechanism of tumor progression 5 that is frequently hypothesized. 6 Q. And that's consistent with 7 your -- with your opinion in this case? 8 MR. HEGARTY: Objection to 9 form. 10 THE WITNESS: Yes. 11 BY MS. O'DELL: 12 Q. Is that consistent with your 13 opinion in this case? 14 A. Yes, it is. 15 Q. Did they discuss migration 16 as part of the biologically plausible 17 mechanism for the connection between 18 perineal use of talc and development of 19 ovarian cancer? 20 A. Yes, they did. 21 Q. Okay. Did they, on Page 15 22 and 16, did they discuss some of the 23 animal studies that you reference and 24 rely on in reaching your opinions in this</p>

127 (Pages 502 to 505)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 506</p> <p>1 case?</p> <p>2 A. Yes, they do.</p> <p>3 MR. HEGARTY: Objection to</p> <p>4 form.</p> <p>5 THE WITNESS: And --</p> <p>6 BY MS. O'DELL:</p> <p>7 Q. Excuse me.</p> <p>8 A. They include Hamilton et</p> <p>9 al., 1984. Keskin 2009. Hamilton 1984</p> <p>10 again. Keskin again.</p> <p>11 Q. Okay. And if you'll turn to</p> <p>12 Page 21. You'll see at the top of the</p> <p>13 page, they have a section on biologic</p> <p>14 plausibility.</p> <p>15 A. Yes, they do.</p> <p>16 Q. Is -- is their discussion of</p> <p>17 biological plausibility as outlined on</p> <p>18 Page 21 consistent with your opinions in</p> <p>19 this case?</p> <p>20 MR. HEGARTY: Objection to</p> <p>21 form.</p> <p>22 THE WITNESS: Definitely</p> <p>23 consistent. Particles of talc are</p> <p>24 hypothesized to migrate into the</p>	<p style="text-align: right;">Page 508</p> <p>1 Q. Counsel directed your</p> <p>2 attention to the sentence -- counsel for</p> <p>3 Johnson & Johnson -- direct -- directed</p> <p>4 your attention to the sentence near the</p> <p>5 bottom of the left column.</p> <p>6 A. An important finding of this</p> <p>7 study is that talc use?</p> <p>8 Q. Yeah, the -- the potential</p> <p>9 mechanism by which genital talc is</p> <p>10 associated with an increased risk of</p> <p>11 ovarian cancer --</p> <p>12 A. I'm sorry. Again,</p> <p>13 discussion on the left side?</p> <p>14 Q. Yes. At the bottom of the</p> <p>15 first paragraph, the last sentence.</p> <p>16 A. Okay. I'm sorry.</p> <p>17 "Potential mechanism by which general</p> <p>18 talc associated with an increased risk of</p> <p>19 ovarian cancer hence remains unclear."</p> <p>20 Q. And Johnson & Johnson's</p> <p>21 counsel asked you about that sentence.</p> <p>22 A. Yes, they did.</p> <p>23 Q. But they didn't ask you</p> <p>24 about other sentences in this -- this</p>
<p style="text-align: right;">Page 507</p> <p>1 pelvis and ovarian tissue causing</p> <p>2 irritation and inflammation. And</p> <p>3 the presence of talc in the</p> <p>4 ovaries as I discussed previously</p> <p>5 has been documented by Heller in</p> <p>6 1996.</p> <p>7 BY MS. O'DELL:</p> <p>8 Q. Great. Thank you.</p> <p>9 Doctor, you were also asked</p> <p>10 some questions about the Penninkilampi</p> <p>11 paper.</p> <p>12 Do you recall those?</p> <p>13 A. I do recall being asked,</p> <p>14 yeah, from that.</p> <p>15 Q. Potentially the most</p> <p>16 difficult name to pronounce in the</p> <p>17 litigation.</p> <p>18 The Penninkilampi paper</p> <p>19 was -- was marked as Exhibit 34. Do you</p> <p>20 recall that?</p> <p>21 A. I see, I see it here. Yes.</p> <p>22 Q. And if I can ask you to turn</p> <p>23 to Page 45.</p> <p>24 A. I see Page 45.</p>	<p style="text-align: right;">Page 509</p> <p>1 paper, fair?</p> <p>2 A. That's fair.</p> <p>3 Q. So if you'll look to the</p> <p>4 right column on Page 45. Do you see the</p> <p>5 sentence beginning "if chronic</p> <p>6 inflammation"?</p> <p>7 A. I do. "If chronic</p> <p>8 inflammation due to ascending foreign</p> <p>9 bodies is indeed the mechanism by which</p> <p>10 talc use is associated with increased</p> <p>11 ovarian cancer risks, then the results</p> <p>12 fit the picture."</p> <p>13 Q. Is -- is that statement that</p> <p>14 the authors of the Penninkilampi study</p> <p>15 included in their report, excuse me, in</p> <p>16 their article, is that consistent with</p> <p>17 your opinions in this case?</p> <p>18 A. It is consistent.</p> <p>19 Q. And does it confirm the</p> <p>20 opinions that you reached in this case?</p> <p>21 A. It acts to confirm, yes, it</p> <p>22 does.</p> <p>23 Q. Okay. You were asked</p> <p>24 about -- a number of questions about</p>

128 (Pages 506 to 509)

Judith Zelikoff, Ph.D.

Page 510	Page 512
<p>1 asbestos and the specific amount of 2 asbestos that would be introduced with 3 the perineal application of -- of talc. 4 A. Yes -- 5 Q. And let me ask you -- 6 A. -- I recall. 7 Q. You recall those questions? 8 A. Yes, I do. 9 Q. Is there any safe level of 10 asbestos -- 11 MR. HEGARTY: Objection to 12 form. 13 BY MS. O'DELL: 14 Q. -- in the perineum? 15 A. My opinion and conclusion is 16 no. 17 Q. Is asbestos a known potent 18 carcinogen? 19 A. It is. According -- 20 Q. Excuse me. Please go ahead. 21 A. According to the regulators 22 and the documents, it is, yes, a known 23 carcinogen, and it's extremely potent. 24 If you look at the effects that it causes</p>	<p>1 deposition of Robert Glenn in your 2 report? 3 A. I'm sorry, the deposition of 4 who? 5 Q. Robert Glenn. Page 6, about 6 midway down. 7 A. Yes, I did. "Because 8 asbestos is a known carcinogen, its 9 presence in cosmetic talc is 10 unacceptable, FDA 2012, FDA 2015." 11 Q. And do you recall that -- 12 was Mr. Glenn a former director of the 13 National Institute for Occupational 14 Safety and Health or NIOSH? 15 A. Yes. 16 Q. And what did Mr. Glenn 17 testify to regarding the presence of 18 asbestos in talc-based products? 19 A. He says, "As stated in a 20 recent deposition, that if there were a 21 fiber of asbestos in talcum-based 22 products, it would certainly 'provide a 23 biologically plausible mechanism for 24 increased lung disease' and that he</p>
Page 511	Page 513
<p>1 and at the dose levels that it causes 2 these effects. 3 Q. And of course IARC has -- 4 A. IARC has classified it as a 5 Class 1A. 6 Q. And did you review and rely 7 on IARC's conclusion regarding asbestos? 8 A. I did. 9 Q. Excuse me. And its 10 contribution to the -- to the development 11 of ovarian cancer? 12 A. Yes, I did. 13 Q. Did you review and rely on 14 IARC's conclusions regarding fibrous talc 15 or talc in an asbestiform habit regarding 16 its ability to cause ovarian cancer? 17 MR. HEGARTY: Objection to 18 form. 19 THE WITNESS: I did. 20 BY MS. O'DELL: 21 Q. If you'll turn to Page 6 in 22 your report. 23 A. Yes, I see it. 24 Q. Did you -- did you cite the</p>	<p>1 suspected that it would also have a 2 similar mechanism of disease in other 3 tissues and organs." 4 Q. And you were asked a number 5 of questions about the different 6 constituents of talcum powder products. 7 A. Yes. 8 Q. If talcum powder products 9 did not contain asbestos, would that 10 change your opinion about the biological 11 plausible mechanism of -- that explains 12 talc -- talc-based products causing 13 ovarian cancer? 14 A. No, it would not. 15 Q. You were asked questions 16 about a Dr. Neel from NYU. 17 A. The NYU Cancer Center. 18 Q. And you were asked if you 19 knew Dr. Neel. 20 A. Yes, I recall the question. 21 Q. And what's your 22 understanding of Dr. Neel's position? 23 A. My understanding is that he 24 is the chair -- he may not be called the</p>

Judith Zelikoff, Ph.D.

Page 514	Page 516
<p>1 chair -- but he is the director of the</p> <p>2 cancer center for NYU Langone Health and</p> <p>3 NYU Medical School. It morphs into</p> <p>4 different names.</p> <p>5 Q. And in regard to the</p> <p>6 toxicity of talcum powder products and</p> <p>7 its effects, toxicological effects,</p> <p>8 would -- would you be more knowledgeable</p> <p>9 about those particular effects than a</p> <p>10 clinician who diagnoses and treats</p> <p>11 ovarian cancer?</p> <p>12 MR. HEGARTY: Objection to</p> <p>13 form.</p> <p>14 BY MS. O'DELL:</p> <p>15 Q. Like Dr. Neel?</p> <p>16 A. I'm a toxicologist, and so</p> <p>17 my main area of focus and understanding</p> <p>18 and literature has to do with toxicology,</p> <p>19 toxicological mechanisms, toxicological</p> <p>20 effects.</p> <p>21 Q. So --</p> <p>22 A. So my knowledge base in</p> <p>23 those areas would -- I would suspect very</p> <p>24 strongly would exceed that of Dr. Neel's,</p>	<p>1 form.</p> <p>2 THE WITNESS: Could you</p> <p>3 clarify that question?</p> <p>4 BY MS. O'DELL:</p> <p>5 Q. Yeah. It was a bad</p> <p>6 question. I'm sorry. I'm getting tired.</p> <p>7 A. If you're asking -- would</p> <p>8 you like to ask -- rephrase it, or should</p> <p>9 I give you my thought of what you were</p> <p>10 trying to ask?</p> <p>11 Q. Well, why don't you</p> <p>12 interpret my question, and I'll follow</p> <p>13 up.</p> <p>14 A. If you're asking me if</p> <p>15 nickel was a component of the non-fibrous</p> <p>16 talc, then was nickel also in place when</p> <p>17 it was treated, when the cells were</p> <p>18 treated?</p> <p>19 Q. That's correct.</p> <p>20 A. Yes, if nickel was in the</p> <p>21 non-fibrous talc then, yes, it was also</p> <p>22 there when the cells were being exposed.</p> <p>23 Q. And so -- and that would be</p> <p>24 true of chromium and cobalt?</p>
Page 515	Page 517
<p>1 who is a clinician.</p> <p>2 Q. You were asked some</p> <p>3 questions about the Shukla paper.</p> <p>4 A. Yes.</p> <p>5 Q. And -- and the Shukla paper</p> <p>6 involved the use of talcum powder?</p> <p>7 A. Yes.</p> <p>8 Q. And if the --</p> <p>9 A. Do you recall what exhibit</p> <p>10 that was?</p> <p>11 Q. I think it was the last</p> <p>12 exhibit.</p> <p>13 A. May I have a copy?</p> <p>14 Q. 48. And did the Shukla</p> <p>15 study involve the testing of, or the use</p> <p>16 of talcum powder?</p> <p>17 A. Yes. As they call it,</p> <p>18 non-fibrous talc.</p> <p>19 Q. And if the talcum powder</p> <p>20 used in the Shukla study contained</p> <p>21 nickel, that would be -- the data that</p> <p>22 was reported in that study would be</p> <p>23 relevant for the effects of nickel, fair?</p> <p>24 MR. HEGARTY: Objection to</p>	<p>1 A. Yes.</p> <p>2 Q. And so, the results from the</p> <p>3 Shukla study would have bearing on the</p> <p>4 effect of those heavy metals if contained</p> <p>5 in talcum powder?</p> <p>6 MR. HEGARTY: Objection to</p> <p>7 form.</p> <p>8 THE WITNESS: Yes, if they</p> <p>9 were -- yes, as constituents, they</p> <p>10 would -- I would imagine and know</p> <p>11 that they would play -- they could</p> <p>12 be playing a role in the</p> <p>13 toxicity -- the cell toxicity or</p> <p>14 the gene expression changes that</p> <p>15 were observed.</p> <p>16 BY MS. O'DELL:</p> <p>17 Q. Thank you. And in regard to</p> <p>18 your opinions related to cobalt,</p> <p>19 chromium, and nickel, you were asked a</p> <p>20 number of questions about whether there</p> <p>21 were any human studies measuring the</p> <p>22 effect of -- of nickel at -- in the</p> <p>23 ovary. Do you recall that?</p> <p>24 A. I recall that question --</p>

130 (Pages 514 to 517)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 518</p> <p>1 those questions.</p> <p>2 Q. Would it be possible to</p> <p>3 design a study in humans where nickel was</p> <p>4 deposited at their ovary to see if a</p> <p>5 female would develop ovarian cancer?</p> <p>6 A. I think I answered and said</p> <p>7 that would be ridiculous in the sense</p> <p>8 that this would be totally unethical to</p> <p>9 take a known carcinogen or a classified</p> <p>10 1A carcinogen and use it for experimental</p> <p>11 studies in humans by placing it in the</p> <p>12 perineal -- or anywhere within the body</p> <p>13 intentionally.</p> <p>14 Q. And would that also be true</p> <p>15 for similar reasons for cobalt and</p> <p>16 chromium?</p> <p>17 A. Yes.</p> <p>18 Q. Would the same also be true</p> <p>19 of designing a study that applied</p> <p>20 asbestos to a female's ovary for purposes</p> <p>21 of seeing if she developed cancer?</p> <p>22 A. I'm smiling because it holds</p> <p>23 true for any -- any known or suspected</p> <p>24 carcinogen cannot be used intentionally</p>	<p style="text-align: right;">Page 520</p> <p>1 IRBs.</p> <p>2 Q. Okay. You looked at, as I</p> <p>3 understand it, for your purposes of your</p> <p>4 task in this case, you looked at the</p> <p>5 issue of biologic plausibility for</p> <p>6 perineal talc use and ovarian cancer.</p> <p>7 A. Yes, I did.</p> <p>8 Q. Did you -- did you -- was</p> <p>9 that inquiry focused on epithelial</p> <p>10 ovarian cancer in particular?</p> <p>11 A. It -- it was -- most, if not</p> <p>12 all the studies I looked at in animals</p> <p>13 and -- were associated with epithelial</p> <p>14 ovarian cancer.</p> <p>15 Some studies in humans did</p> <p>16 look -- did break out the differences.</p> <p>17 Q. Let me ask you if you</p> <p>18 wouldn't mind, to turn to Page 8 of your</p> <p>19 report. And you'll look at the top of</p> <p>20 the page. In the first full paragraph,</p> <p>21 middle of the -- that paragraph discusses</p> <p>22 Dr. Longo and Rigler's recent report that</p> <p>23 reports that talcum powder products</p> <p>24 manufactured by Johnson's Baby Powder and</p>
<p style="text-align: right;">Page 519</p> <p>1 on a human being for testing. It's</p> <p>2 unethical, and would probably in all</p> <p>3 likelihood not be approved by the</p> <p>4 institutional review board of academic</p> <p>5 institutions or any reputable scientists.</p> <p>6 Q. Would that be true of</p> <p>7 fibrous talc?</p> <p>8 MR. HEGARTY: Objection to</p> <p>9 form.</p> <p>10 BY MS. O'DELL:</p> <p>11 Q. You may answer.</p> <p>12 A. That would be true of</p> <p>13 fibrous talc.</p> <p>14 Q. Would it be true of platy</p> <p>15 talc, if there is such a thing as pure</p> <p>16 platy talc?</p> <p>17 A. If there is a -- if there is</p> <p>18 any suspicion that any product, including</p> <p>19 platy talc, might be involved in</p> <p>20 producing inflammation or any other type</p> <p>21 of adverse health effect, then it would</p> <p>22 be very unethical to go ahead and</p> <p>23 intentionally use that in a human study,</p> <p>24 in my opinion, and in the opinion of most</p>	<p style="text-align: right;">Page 521</p> <p>1 Shower to Shower have contained and</p> <p>2 continue to contain asbestos. Do you see</p> <p>3 that sentence?</p> <p>4 A. Yes, I do.</p> <p>5 Q. And then it goes on, you go</p> <p>6 on to report his results from test of</p> <p>7 samples manufactured from the 1960s and</p> <p>8 1990s.</p> <p>9 A. Through -- through the</p> <p>10 1990s.</p> <p>11 Q. Through the 1990s, that's</p> <p>12 correct.</p> <p>13 And you -- you have a</p> <p>14 footnote here to Footnote 7?</p> <p>15 A. Yes.</p> <p>16 Q. And Dr. Longo and Rigler's</p> <p>17 report is noted in the footnote and it's</p> <p>18 dated November 14, 2018.</p> <p>19 A. Yes.</p> <p>20 Q. Do you see that?</p> <p>21 A. Yes.</p> <p>22 Q. And just, did you have in</p> <p>23 your possession and review Dr. Rigler and</p> <p>24 Longo's November 14, 2018, report during</p>

131 (Pages 518 to 521)

Judith Zelikoff, Ph.D.

Page 522	Page 524
<p>1 the completion of your own report?</p> <p>2 A. I had it available prior to</p> <p>3 the submission of my final report, yes.</p> <p>4 The only thing I did not</p> <p>5 have was the December 2018 supplement.</p> <p>6 Q. His most recent supplement?</p> <p>7 A. His most recent supplement,</p> <p>8 yes.</p> <p>9 Q. I think just to be clear,</p> <p>10 that -- was his most recent supplemental</p> <p>11 report you're referring to, was that the</p> <p>12 report dated in January, I think 16th or</p> <p>13 15th of this month?</p> <p>14 A. It was sometime in January.</p> <p>15 Q. Okay.</p> <p>16 A. Yes. I could answer that</p> <p>17 question specifically if I saw the</p> <p>18 exhibit.</p> <p>19 Q. And I've handed you what's</p> <p>20 been marked I think as Exhibit --</p> <p>21 A. 3.</p> <p>22 Q. 3. And is Exhibit 3 the</p> <p>23 supplemental report --</p> <p>24 A. Yes, it is.</p>	<p>1 that Ms. O'Dell asked you.</p> <p>2 First of all, you were</p> <p>3 referred to Page 12 of your report</p> <p>4 under -- under Section C, Fragrances.</p> <p>5 Would you go to that portion of your</p> <p>6 report please?</p> <p>7 A. I will, thank you. Yes.</p> <p>8 I'm here.</p> <p>9 Q. You were asked about this</p> <p>10 part of your report being identical to</p> <p>11 the same part of Smith-Bindman's report.</p> <p>12 Do you recall being asked those</p> <p>13 questions?</p> <p>14 MS. O'DELL: Object to the</p> <p>15 form.</p> <p>16 THE WITNESS: Smith --</p> <p>17 Smith-Bindman report? I'm sorry,</p> <p>18 I don't recall -- oh, in the</p> <p>19 beginning of the deposition?</p> <p>20 BY MR. HEGARTY:</p> <p>21 Q. Yes.</p> <p>22 A. Okay. That was a long time</p> <p>23 ago.</p> <p>24 Q. First of all, are you aware</p>
Page 523	Page 525
<p>1 Q. -- that you reviewed</p> <p>2 recently?</p> <p>3 A. I'm sorry, yes.</p> <p>4 Q. And what's the date on the</p> <p>5 report?</p> <p>6 A. January 15, 2019.</p> <p>7 MS. O'DELL: Okay. I have</p> <p>8 nothing further, Doctor. Thank</p> <p>9 you.</p> <p>10 MR. HEGARTY: Take a break.</p> <p>11 I need to use the restroom.</p> <p>12 THE VIDEOGRAPHER: The time</p> <p>13 is 8:10 p.m. Going off the</p> <p>14 record.</p> <p>15 (Short break.)</p> <p>16 THE VIDEOGRAPHER: We are</p> <p>17 back on the record. The time is</p> <p>18 8:16 p m.</p> <p>19 - - -</p> <p>20 EXAMINATION</p> <p>21 - - -</p> <p>22 BY MR. HEGARTY:</p> <p>23 Q. Dr. Zelikoff, I have some</p> <p>24 questions in follow-up to the questions</p>	<p>1 that Dr. Crowley has been deposed in this</p> <p>2 litigation?</p> <p>3 A. Yes.</p> <p>4 Q. Did you read his deposition?</p> <p>5 A. I did.</p> <p>6 Q. When did you read his</p> <p>7 deposition?</p> <p>8 A. I'm sorry, I don't recall</p> <p>9 the exact date.</p> <p>10 May I see Dr. Crowley's</p> <p>11 deposition?</p> <p>12 Q. Well, I just asked you if</p> <p>13 you had read it. That's my only</p> <p>14 question.</p> <p>15 Other than Dr. Crowley's</p> <p>16 deposition, have you read the depositions</p> <p>17 of any other plaintiffs' experts deposed</p> <p>18 in the MDL, this litigation?</p> <p>19 A. Any of the other plaintiffs'</p> <p>20 depositions?</p> <p>21 Q. Correct.</p> <p>22 A. Dr. Dydek.</p> <p>23 Q. Anybody else?</p> <p>24 A. I'm looking to see the</p>

132 (Pages 522 to 525)

Judith Zelikoff, Ph.D.

Page 526	Page 528
<p>1 others.</p> <p>2 Q. It's at the end of Exhibit</p> <p>3 B.</p> <p>4 A. Okay. Thank you. Thank</p> <p>5 you.</p> <p>6 Q. Well, my question -- let me</p> <p>7 ask a different question. Let me ask</p> <p>8 whether you have reviewed the MDL</p> <p>9 depositions; that is, the depositions</p> <p>10 that plaintiffs' experts have taken in</p> <p>11 this litigation over their expert reports</p> <p>12 besides Dr. Crowley?</p> <p>13 MS. O'DELL: Object to form.</p> <p>14 THE WITNESS: Dr. Longo.</p> <p>15 Sorry.</p> <p>16 BY MR. HEGARTY:</p> <p>17 Q. Dr. Longo has not yet been</p> <p>18 deposed in --</p> <p>19 A. I read his report.</p> <p>20 Q. -- for his MDL report.</p> <p>21 No, I'm talking about the</p> <p>22 deposition --</p> <p>23 A. I'm sorry.</p> <p>24 Q. -- of an expert who has</p>	<p>1 Q. Page 12.</p> <p>2 A. "There are more than 150</p> <p>3 different chemicals"?</p> <p>4 Q. Those four sentences, or</p> <p>5 three -- or strike that.</p> <p>6 The second sentence in that</p> <p>7 section is not in Dr. Crowley's report.</p> <p>8 He did not write, "I reviewed the expert</p> <p>9 report of Dr. Michael Crowley that</p> <p>10 concludes that some of these chemicals</p> <p>11 may contribute to the inflammatory</p> <p>12 response, toxicity, and potential</p> <p>13 toxicity of Johnson & Johnson's talcum</p> <p>14 powder products."</p> <p>15 MS. O'DELL: Objection.</p> <p>16 BY MR. HEGARTY:</p> <p>17 Q. That sentence is not in</p> <p>18 Dr. Crowley's report?</p> <p>19 MS. O'DELL: Objection.</p> <p>20 THE WITNESS: I'm terribly</p> <p>21 sorry. I'm going to silence that</p> <p>22 or we can and talk over it.</p> <p>23 MS. O'DELL: Go ahead and</p> <p>24 silence it.</p>
Page 527	Page 529
<p>1 been -- who is being deposed about their</p> <p>2 report in the MDL.</p> <p>3 You said Dr. Crowley. Have</p> <p>4 you read anyone else's deposition that</p> <p>5 have discussed their report in the MDL?</p> <p>6 MS. O'DELL: I think there</p> <p>7 may be some confusion between</p> <p>8 report and deposition.</p> <p>9 THE WITNESS: Yes. There</p> <p>10 was.</p> <p>11 BY MR. HEGARTY:</p> <p>12 Q. Did you read Dr. Crowley's</p> <p>13 deposition over his report?</p> <p>14 A. I read Dr. Crowley's report.</p> <p>15 I'm sorry. I stand corrected.</p> <p>16 Q. Dr. Crowley's report does</p> <p>17 not contain the sentences that you've</p> <p>18 included under your Section C,</p> <p>19 fragrances, correct?</p> <p>20 MS. O'DELL: Object to the</p> <p>21 form.</p> <p>22 THE WITNESS: What page are</p> <p>23 we going back to, please?</p> <p>24 BY MR. HEGARTY:</p>	<p>1 (Brief interruption.)</p> <p>2 MR. HEGARTY: Let's go off</p> <p>3 the record.</p> <p>4 THE VIDEOGRAPHER: The time</p> <p>5 is 8:21 p.m. Off the record.</p> <p>6 (Whereupon, a discussion was</p> <p>7 held off the record.)</p> <p>8 THE VIDEOGRAPHER: The time</p> <p>9 is 8:21 p.m. Back on the record.</p> <p>10 BY MR. HEGARTY:</p> <p>11 Q. The second sentence under</p> <p>12 your section fragrances is nowhere in</p> <p>13 Dr. Crowley's report?</p> <p>14 A. That --</p> <p>15 MS. O'DELL: Objection to</p> <p>16 form.</p> <p>17 THE WITNESS: That sentence</p> <p>18 is not there, but I concluded that</p> <p>19 when he talked about the</p> <p>20 fragrances, I concluded that -- I</p> <p>21 inferred from his -- from his</p> <p>22 report, that these chemicals do</p> <p>23 contribute to the inflammatory</p> <p>24 response, toxicity and potential</p>

133 (Pages 526 to 529)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 530</p> <p>1 carcinogenicity. 2 BY MR. HEGARTY: 3 Q. The sentence, "I concur with 4 his opinion," is not in Dr. Crowley's 5 report, is it? 6 A. No. That was my opinion. 7 Q. That same opinion, stated 8 exactly the same way, is in the 9 Dr. Smith-Bindman report, correct? 10 A. Can I see that report? 11 Q. Do you recall without 12 looking at it, that that same section is 13 in her report? 14 A. I do not. I do not recall. 15 Q. Okay. Did you -- do you 16 know -- have you ever spoken to 17 Dr. Smith-Bindman? 18 A. Not at all. 19 Q. Do you know who she is? 20 A. I don't. 21 Q. Do you know her expertise? 22 A. I do not. 23 Q. Have you ever heard her name 24 before today?</p>	<p style="text-align: right;">Page 532</p> <p>1 BY MR. HEGARTY: 2 Q. Doctor, you -- 3 A. -- that included talc. 4 Q. Doctor, you testified 5 earlier in this deposition that your 6 information as it relates to talc and 7 ovarian cancer came from the media and 8 discussion with colleagues, correct? 9 A. Prior to being contacted. 10 Q. Right. So prior to being 11 contacted for counsel for plaintiffs, you 12 had no expertise in talc and ovarian 13 cancer, correct? 14 A. As a toxicologist -- I'm 15 sorry. I'm getting hung up on the word 16 "expert" as you're using it. As a 17 toxicologist, I am familiar with talc. I 18 am familiar with much of the toxicity of 19 it. But the primary -- in discussing 20 talc and its relationship to cancer, it 21 was through colleagues and the media, 22 yes, correct. 23 Q. You had not studied, prior 24 to being contacted by plaintiffs'</p>
<p style="text-align: right;">Page 531</p> <p>1 A. Not -- not to my knowledge. 2 But I would like to see -- to refresh my 3 memory, if it's available. 4 Q. You were asked about your 5 expertise as it relates to talc and 6 inflammation. Before you were contacted 7 by Ms. Emmel, you had no expertise in 8 talc, correct? 9 MS. O'DELL: Objection to 10 form. 11 THE WITNESS: I performed no 12 scientific studies in it. 13 BY MR. HEGARTY: 14 Q. You also reviewed no 15 scientific studies concerning talc, 16 correct? 17 MS. O'DELL: Objection to 18 form. 19 THE WITNESS: I have 20 reviewed papers. I am editor and 21 associate editor on an editorial 22 board so that in my past 23 experience, I likely reviewed 24 papers --</p>	<p style="text-align: right;">Page 533</p> <p>1 counsel, any issues reported in the 2 medical literature with regard to talc 3 and ovarian cancer, correct? 4 A. I have not studied in my 5 laboratory, that's correct. 6 Q. You also did not review any 7 literature discussing talc and ovarian 8 cancer prior to being contacted by 9 counsel for plaintiff? 10 A. That is correct. 11 Q. Prior to being contacted by 12 counsel for plaintiffs you had not 13 studied the toxicology -- toxic aspects, 14 if any, of talc, correct? 15 MS. O'DELL: Object to the 16 form. 17 THE WITNESS: I have -- as I 18 stated, I have reviewed papers 19 that have looked at it. And I've 20 reviewed them for acceptance into 21 journals. 22 BY MR. HEGARTY: 23 Q. Can you cite for us today 24 any such papers?</p>

134 (Pages 530 to 533)

Judith Zelikoff, Ph.D.

Page 534	Page 536
<p>1 A. Over my career, I cannot. 2 Sorry. 3 Q. Can you identify any study 4 you have published that investigated or 5 discussed the toxicity of cobalt? 6 A. I've written review articles 7 on the toxicology of metals in general 8 and cobalt was in there, and in book 9 chapters. 10 Q. But it's your testimony that 11 you have written review papers where you 12 discussed the toxicity of cobalt? 13 A. I did not say review papers. 14 I said book chapters. 15 Q. So you had written a book 16 chapter to discuss the toxicity of 17 cobalt? 18 MS. O'DELL: Objection to 19 form. 20 THE WITNESS: I was an 21 editor of a book, several books -- 22 two books actually, which looked 23 at the toxicity of cobalt -- 24 looked at the toxicity of metals.</p>	<p>1 nickel? 2 A. Yes. 3 Q. What published article have 4 you -- have you written discussing the 5 toxicity of nickel? 6 A. One that comes to my mind, 7 without looking at my CV, is an early 8 publication associated with the 9 immunology and immunotoxicity of nickel 10 in fish. 11 Q. What nickel -- was it a 12 nickel compound? 13 A. It was a nickel chloride, a 14 soluble nickel compound. 15 Q. Are nickel compounds in 16 Johnson's Baby Powder? 17 A. Nickel -- according to the 18 J&J documents and other -- other internal 19 documents, yes. 20 Q. Okay. What nickel compounds 21 are in Johnson's Baby Powder? 22 A. The report indicates nickel. 23 It does not break it down to a particular 24 salt or a particular compound of nickel.</p>
Page 535	Page 537
<p>1 And cobalt, to my recollection, 2 was in both of those books. 3 BY MR. HEGARTY: 4 Q. Did you write those 5 chapters? 6 A. I reviewed those chapters 7 for publication in those books. 8 Q. My question was did you 9 write those chapters? 10 A. I'm sorry. Did I write 11 those chapters on cobalt? No, I did not. 12 Q. Have you ever written any 13 published chapter or article discussing 14 the toxicity of cobalt? 15 A. I have not -- 16 MS. O'DELL: Objection. 17 THE WITNESS: -- written an 18 article in the area of cobalt, but 19 I am familiar with metals, very 20 much so from the department and 21 the research that I do. 22 BY MR. HEGARTY: 23 Q. Have you written any 24 published article discussing toxicity of</p>	<p>1 Q. Have you written any papers 2 looking at the toxicity of chromium-3? 3 A. I'm going to look in my -- 4 in my CV. 5 Q. Well, without looking at 6 your CV, for purposes of time, can you 7 recall any such article? 8 MS. O'DELL: If you need to 9 take a moment, Doctor, feel free 10 to. 11 MR. HEGARTY: We'll go off 12 the record if she needs to take a 13 moment. 14 BY MR. HEGARTY: 15 Q. Because I qualified my 16 question by asking you, without looking 17 at your CV, are you able to cite an 18 article that you've written? 19 A. I want to give actual data 20 to you. In my mind, I recall a paper 21 that I wrote with Dr. Max Costa on 22 chromium. And -- and possibly with Toby 23 Rossman. But without looking, I can't be 24 absolutely sure.</p>

135 (Pages 534 to 537)

Judith Zelikoff, Ph.D.

Page 538	Page 540
<p>1 Q. You refer over on pages -- 2 or on Page 25 of your report -- 3 A. Yes. 4 Q. -- to -- 5 A. Talc-induced inflammation. 6 Q. Well, let me finish my 7 question. 8 A. Oh, I'm sorry. 9 Q. You refer over on Page 25 in 10 the fourth paragraph to an abstract and 11 other material by Dr. Harper and 12 Dr. Saed, correct? 13 A. Yes. In the last -- in the 14 last paragraph, in the last sentence. 15 Q. And none of those 16 publications refer to testing using 17 Johnson's Baby Powder, correct? 18 MS. O'DELL: Objection to 19 form. 20 THE WITNESS: To my 21 knowledge, no, but I would have to 22 look at the paper to be absolutely 23 sure. But they did use talc, 24 yes -- talcum powder.</p>	<p>1 the statements that you were asked about 2 by plaintiffs' counsel in your expert 3 report, correct? 4 MS. O'DELL: Object to form. 5 THE WITNESS: Not without 6 checking my document, I can't 7 answer conclusively. 8 BY MR. HEGARTY: 9 Q. You did not rely on this 10 portion of the FDA's letter for purposes 11 of your opinions in this case, correct? 12 MS. O'DELL: Regarding the 13 asbestos testing? 14 BY MR. HEGARTY: 15 Q. The portion that I just 16 referred you to, the top two paragraphs 17 at Page 3. 18 A. They do not prove that all 19 talc-containing cosmetic products 20 currently marketed in the United States 21 are free of asbestos. Is that -- 22 Q. Yes. 23 A. Okay. And the question was? 24 Q. You did not refer to that</p>
Page 539	Page 541
<p>1 BY MR. HEGARTY: 2 Q. Can you cite for me any 3 animal or cell studies that you reviewed 4 for purposes of preparing your report 5 that tested Johnson's Baby Powder other 6 than Dr. Saed's recent manuscript? 7 A. I know I have, I just can't 8 recall. 9 You are talking about 10 publications, correct? 11 Q. Yes. That you've cited in 12 your report. 13 A. I can't find it at the 14 moment, so I would have to say no. 15 Q. Did you find Exhibit 33, the 16 FDA's response letter to Dr. Epstein. 17 A. Thank you. 18 Q. You were referred to Page 3 19 in FDA's statement with regard to its 20 testing of samples of cosmetic grade raw 21 material talc and cosmetic products for 22 asbestos? 23 A. Yes, I did. 24 Q. You did not refer to any of</p>	<p>1 statement in your report, correct? 2 A. That is correct, yes. 3 Q. Also you did not cite on 4 Page 5 in your report the statement that 5 "it is, therefore, plausible that 6 perineal talc and other particulate that 7 reaches the endometrial cavity, et 8 cetera, may elicit foreign body-type 9 reaction and inflammatory response that 10 in some exposed women may progress to 11 epithelial cancers." 12 You did not cite that 13 sentence in your report either, correct? 14 A. I did not -- 15 MS. O'DELL: Objection to 16 form. 17 THE WITNESS: I did not cite 18 that sentence in my report either. 19 However, this document was in 20 my -- in my citations in the 21 overall reliance -- reliance 22 document. 23 BY MR. HEGARTY: 24 Q. With regard to the draft</p>

136 (Pages 538 to 541)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 542</p> <p>1 screening assessment by Canada, Canada 2 employs a precautionary principle. Are 3 you aware of that? 4 A. Yes. 5 Q. Do you know what a 6 precautionary principle is? 7 A. I do know what a 8 precaution -- 9 Q. What is it? 10 A. A precautionary principle is 11 one where you -- in my -- in my opinion 12 and what -- to my knowledge, it's a 13 principle in which you use every 14 precaution in terms of assessment, in 15 terms of use in animal models and human 16 models. You follow precaution. 17 Q. Okay. The draft screenings 18 assessment, Exhibit Number 9, contains 19 the following statement -- and I only -- 20 I only have your copy. 21 A. Oh okay. 22 Q. I'm going to read it to you 23 and tell me whether you agree with it. 24 A. Okay.</p>	<p style="text-align: right;">Page 544</p> <p>1 "The specific mechanisms and 2 cascade of molecular events by which talc 3 might cause ovarian cancer have not been 4 identified." 5 MS. O'DELL: Wait. Do you 6 mind showing Dr. Zelikoff? 7 MR. HEGARTY: Well, then I 8 won't have -- I'm just reading 9 this statement. 10 MS. O'DELL: Well, but if 11 you're reading from the draft 12 assessment -- 13 MR. HEGARTY: You know what, 14 I -- this is the only copy I have. 15 If you want to hand me your copy. 16 MR. TISI: I have my copy. 17 It has my notes on it. If you... 18 Do you want it? 19 MS. O'DELL: You're welcome 20 to my copy. 21 MR. HEGARTY: Thank you. 22 BY MR. HEGARTY: 23 Q. Page 18, second paragraph. 24 I was on Page 18, Doctor.</p>
<p style="text-align: right;">Page 543</p> <p>1 Q. "The etiology of most 2 ovarian tumors in general has not been 3 well established." 4 MS. O'DELL: What page are 5 you on, please? 6 MR. HEGARTY: Page 18. 7 BY MR. HEGARTY: 8 Q. Do you agree with that 9 statement? 10 A. Please read it again. 11 Q. "The etiology of most 12 ovarian tumors in general has not been 13 well established." 14 A. The etiology is -- has not 15 been well established. But it has been 16 studied. But there -- okay. I'm done. 17 Q. The -- on page -- strike 18 that. On Page 21 -- 19 A. Of my report? 20 Q. No, of the -- 21 A. Health Canada. 22 Q. -- health assessment states 23 the following statement and tell me 24 whether you agree with it.</p>	<p style="text-align: right;">Page 545</p> <p>1 A. You handed it to me like 2 this, sir. 3 Q. Right. On page -- I'm 4 sorry, Page 21. 5 A. This is Page 21. 6 Q. Sorry. Page 21, second 7 paragraph. The statement at the end 8 reads, "However, the specific mechanisms 9 and cascade of molecular events by which 10 talc might cause ovarian cancer have not 11 been identified." 12 Do you agree with that 13 statement? 14 MS. O'DELL: Objection to 15 form. 16 THE WITNESS: That's a 17 statement here. 18 BY MR. HEGARTY: 19 Q. Do you agree with that 20 statement? 21 A. Oh, I'm sorry. I'm sorry, 22 I've lost -- Page 21, what -- 23 Q. Page 21, second paragraph -- 24 A. -- what paragraph?</p>

137 (Pages 542 to 545)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 546</p> <p>1 Under --</p> <p>2 Q. Last two lines.</p> <p>3 A. Under --</p> <p>4 Q. Under -- in the biologic</p> <p>5 plausibility section.</p> <p>6 A. I see it. Thank you.</p> <p>7 Q. It read -- the statement</p> <p>8 reads: The specific mechanisms and</p> <p>9 cascade of molecular events by which talc</p> <p>10 might cause ovarian cancer have not been</p> <p>11 identified.</p> <p>12 Do you agree with that</p> <p>13 statement?</p> <p>14 A. Yes, they have not been</p> <p>15 clearly and conclusively identified.</p> <p>16 Q. But that's not what that</p> <p>17 sentence reads. My question was do you</p> <p>18 agree with the sentence that I just read</p> <p>19 to you.</p> <p>20 A. It is -- I think it's a</p> <p>21 sentence taken out of text.</p> <p>22 Do I agree with the sentence</p> <p>23 as it is written? No. I would have to</p> <p>24 add the words, "have not been clearly</p>	<p style="text-align: right;">Page 548</p> <p>1 today it's not -- you're not using it to</p> <p>2 inform your opinions, correct?</p> <p>3 A. It is -- it is support and</p> <p>4 validation of my opinions.</p> <p>5 Q. You referenced IARC and its</p> <p>6 designation of asbestos. What has IARC</p> <p>7 designated talc for genital uses as?</p> <p>8 MS. O'DELL: Objection.</p> <p>9 THE WITNESS: I -- in -- in</p> <p>10 terms of classification, may I</p> <p>11 look at the document?</p> <p>12 BY MR. HEGARTY:</p> <p>13 Q. Well, they've designated</p> <p>14 talc used --</p> <p>15 A. Fibrous -- fibrous --</p> <p>16 Q. -- for perineal use as 2B,</p> <p>17 correct?</p> <p>18 A. 2B, yes. Fibrous talc,</p> <p>19 correct.</p> <p>20 Q. You were asked about the</p> <p>21 deposition of Robert Glenn, correct?</p> <p>22 A. The past manager and</p> <p>23 director of NIOSH.</p> <p>24 Q. Yes.</p>
<p style="text-align: right;">Page 547</p> <p>1 identified."</p> <p>2 Q. So you don't agree with</p> <p>3 everything in the --</p> <p>4 A. Or established.</p> <p>5 Q. So you don't agree with</p> <p>6 everything in Health Canada's risk</p> <p>7 assessment, correct?</p> <p>8 MS. O'DELL: Objection to</p> <p>9 form.</p> <p>10 THE WITNESS: I -- I do not</p> <p>11 agree with this sentence, correct.</p> <p>12 BY MR. HEGARTY:</p> <p>13 Q. You do rely on, for purposes</p> <p>14 of your opinions in this case, the draft</p> <p>15 screening assessment, correct?</p> <p>16 MS. O'DELL: Objection.</p> <p>17 THE WITNESS: No. That came</p> <p>18 out well after I handed in my</p> <p>19 final report, so it was not used</p> <p>20 to inform my opinion. It was</p> <p>21 supporting validation for my</p> <p>22 opinion.</p> <p>23 BY MR. HEGARTY:</p> <p>24 Q. So still -- still through</p>	<p style="text-align: right;">Page 549</p> <p>1 A. Yes.</p> <p>2 Q. Did you read the entirety of</p> <p>3 his deposition?</p> <p>4 A. No, I did not.</p> <p>5 Q. Did you agree with</p> <p>6 everything he said in his deposition?</p> <p>7 A. I said I did not read the</p> <p>8 entirety. I can't answer.</p> <p>9 (Document marked for</p> <p>10 identification as Exhibit</p> <p>11 Zelikoff-49.)</p> <p>12 BY MR. HEGARTY:</p> <p>13 Q. I'm going to mark as</p> <p>14 Exhibit 49, portions of the deposition of</p> <p>15 Dr. Robert Glenn. If you turn to the</p> <p>16 first page of that exhibit, Page 482.</p> <p>17 A. Page 482, yes.</p> <p>18 Q. Yes. Mr. Glenn was asked in</p> <p>19 the middle of the page, Lines 12 to 14,</p> <p>20 "Has the data also showed that talcum</p> <p>21 powder is not cytotoxic, meaning it</p> <p>22 doesn't damage cells?"</p> <p>23 Mr. Glenn answer's, "Yes."</p> <p>24 A. Yes.</p>

138 (Pages 546 to 549)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 550</p> <p>1 Q. Did you cite that portion of</p> <p>2 his testimony in your expert report?</p> <p>3 MS. O'DELL: Objection to</p> <p>4 form.</p> <p>5 THE WITNESS: No.</p> <p>6 BY MR. HEGARTY:</p> <p>7 Q. Did you read it?</p> <p>8 A. I said that I did not read</p> <p>9 this in its -- in its entirety.</p> <p>10 Q. Do you agree with that</p> <p>11 sentence?</p> <p>12 I'm sorry, do you agree with</p> <p>13 his answer to that question?</p> <p>14 MS. O'DELL: Objection to</p> <p>15 form.</p> <p>16 THE WITNESS: To the</p> <p>17 question, "Has the data also</p> <p>18 showed that talcum powder is not</p> <p>19 cytotoxic, meaning it doesn't</p> <p>20 damage cells?"</p> <p>21 So if the question is do I</p> <p>22 agree with that sentence -- do I</p> <p>23 agree with his answer of yes,</p> <p>24 there have been data showing, in</p>	<p style="text-align: right;">Page 552</p> <p>1 shows that talcum powder is not</p> <p>2 mutagenic? There is.</p> <p>3 Q. Did you cite that portion of</p> <p>4 Mr. Glenn's testimony in your report?</p> <p>5 A. No, I did not.</p> <p>6 Q. If you look at the next page</p> <p>7 at the top. The question, 2 through 7,</p> <p>8 with the answer on 8.</p> <p>9 A. Mm-hmm-hmm.</p> <p>10 Q. Did you cite that question</p> <p>11 and answer in your report?</p> <p>12 MS. O'DELL: Object to the</p> <p>13 form.</p> <p>14 THE WITNESS: I did not cite</p> <p>15 any of Dr. Glenn's information</p> <p>16 because I -- I did not read it in</p> <p>17 detail.</p> <p>18 BY MR. HEGARTY:</p> <p>19 Q. You can put that aside.</p> <p>20 Is it your testimony that</p> <p>21 you're more knowledgeable regarding talc</p> <p>22 and ovarian cancer than Dr. Neel?</p> <p>23 A. No, what my testimony is to</p> <p>24 is that I have extensive knowledge in</p>
<p style="text-align: right;">Page 551</p> <p>1 certain circumstances, in certain</p> <p>2 cell lines, that talcum powder has</p> <p>3 not been shown to be cytotoxic at</p> <p>4 certain concentrations.</p> <p>5 BY MR. HEGARTY:</p> <p>6 Q. Looking down at the next</p> <p>7 question, 18 through 21, he's asked, "And</p> <p>8 has the data also showed that talcum</p> <p>9 powder is not mutagenic, meaning it</p> <p>10 doesn't mutate genes?"</p> <p>11 "Answer: Yes."</p> <p>12 Do you agree with his answer</p> <p>13 to that question?</p> <p>14 A. I do not agree. I think</p> <p>15 that the -- I do not agree with his</p> <p>16 answer. I think that his -- that the</p> <p>17 question has to be -- the question in my</p> <p>18 opinion, it was ambiguous. And I'm not</p> <p>19 sure what he was basing that on in terms</p> <p>20 of his response.</p> <p>21 If you -- if he was looking</p> <p>22 at mutagenicity in terms of Ames assays</p> <p>23 or yes, they have not shown mutagenicity.</p> <p>24 So is there data that also</p>	<p style="text-align: right;">Page 553</p> <p>1 toxicological aspects, the cytotoxicity</p> <p>2 of it, and the inflammatory responses</p> <p>3 from an -- from an academic perspective</p> <p>4 and a biological mechanism perspective.</p> <p>5 Q. What is Dr. Neel's knowledge</p> <p>6 of the toxicological aspects and the</p> <p>7 toxicity of talc?</p> <p>8 A. I do not know.</p> <p>9 Q. What's his -- is he a</p> <p>10 cancer -- strike that.</p> <p>11 He is a cancer biologist,</p> <p>12 correct?</p> <p>13 MS. O'DELL: Objection to</p> <p>14 form.</p> <p>15 THE WITNESS: The only thing</p> <p>16 I know about Dr. Neel is that he</p> <p>17 is the director of the Cancer</p> <p>18 Institute. I am not familiar with</p> <p>19 his research.</p> <p>20 BY MR. HEGARTY:</p> <p>21 Q. Have you ever evaluated his</p> <p>22 qualifications?</p> <p>23 A. No. I was not on the search</p> <p>24 committee nor do I have access to his CV.</p>

139 (Pages 550 to 553)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 554</p> <p>1 Q. You made statements 2 indicating that you believe that you are 3 more knowledgeable than Dr. Neel 4 regarding the toxicities of talc. Is 5 that true? 6 A. What I do know is that he is 7 not a toxicologist. 8 Q. Do you know what his area of 9 expertise is? 10 A. He's -- OB/GYN and oncology. 11 Q. Do you know what his level 12 of knowledge is in the area of 13 toxicology? 14 A. I do not. 15 Q. Have you ever met him? 16 A. Yes, I have met him. 17 Q. Have you ever talked to him 18 about his qualifications in the area of 19 toxicology? 20 A. No, I have not. But I know 21 he is not a -- he is not considered a 22 toxicologist by his peers, by colleagues. 23 He is known as a cancer oncologist. He 24 is not known or recognized as a</p>	<p style="text-align: right;">Page 556</p> <p>1 Q. Are you a board-certified 2 oncologist? 3 A. I am not, never claimed to 4 be. 5 Q. Are you a board-certified 6 gynecologic oncologist? 7 MS. O'DELL: Wait a minute. 8 THE WITNESS: I am not, nor 9 have I ever claimed to be. 10 Because -- 11 BY MR. HEGARTY: 12 Q. You were asked -- you were 13 asked about whether you could do -- 14 whether there could be studies looking at 15 risk of cancer in women exposed to 16 cobalt, chromium, and nickel. Do you 17 recall those questions? 18 A. I do. 19 Q. Studies looking at exposures 20 of metals in humans are done all the 21 time. They are called retrospective 22 case-control studies, correct? 23 A. They are not done in a 24 laboratory nor is there insertion of</p>
<p style="text-align: right;">Page 555</p> <p>1 toxicologist. 2 Q. Who have you ever asked -- 3 who have you ever spoken with regarding 4 to Dr. Neel's qualifications as it 5 relates to toxicology? 6 A. I have not spoken to him 7 about his qualifications. My answer 8 comes from the fact that I am an active 9 member in the Society of Toxicology, but 10 nationwide and internationally. And also 11 I'm an active member in the International 12 Union of Toxicology and active member in 13 the other -- other toxicology programs 14 and societies. 15 And I have -- I have not 16 seen Dr. Neel at any of these, nor have I 17 heard of him being spoken at or about in 18 these -- in these meetings. 19 Q. Do you go to OB/GYN 20 conferences? 21 A. I do not. 22 Q. Do you go to oncology 23 conferences? 24 A. I do not.</p>	<p style="text-align: right;">Page 557</p> <p>1 those metals into humans. 2 Q. That's not my question. You 3 said -- you testified that there is no 4 way that you can do a study looking at 5 the effect of nickel in humans. That's 6 not true, is it? 7 MS. O'DELL: Objection to 8 form. Misstates -- 9 THE WITNESS: I'm sorry. 10 MS. O'DELL: -- the question 11 and the testimony. 12 Excuse me, Doctor. 13 THE WITNESS: I was -- I was 14 talking about clinical studies and 15 studies in people. 16 BY MR. HEGARTY: 17 Q. There are retrospective 18 case-control studies looking at exposure 19 of humans to nickel, correct? 20 A. That is -- those are 21 epidemiological studies. My 22 understanding of the question that was 23 asked of me had to do with laboratory 24 studies and intentional exposure.</p>

140 (Pages 554 to 557)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 558</p> <p>1 Q. Well, can you cite for me 2 any epidemiologic studies showing an 3 increased risk of ovarian cancer in women 4 exposed to nickel? 5 A. Nickel alone, I have not 6 reviewed that. But I do know the IARC 7 document talks about it as a Class I 8 carcinogen. 9 Q. Can you cite for me, any 10 retrospective case-control studies, 11 showing an increased risk of ovarian 12 cancer in women exposed to chromium? 13 A. Chromium alone? 14 Q. Yes. 15 A. No, I cannot. 16 Q. Same question as to cobalt? 17 A. No, I cannot. 18 Q. Can you cite for me any 19 case-control studies looking at whether 20 there's an increased risk of ovarian 21 cancer in women exposed to nickel, 22 chromium, and cobalt in combination? 23 A. I hope I understand your 24 question right. But what I am -- what</p>	<p style="text-align: right;">Page 560</p> <p>1 is not unethical, but to use it in 2 a clinical study would be 3 extremely unethical. 4 BY MR. HEGARTY: 5 Q. It would also be appropriate 6 to do cell studies looking at nickel, 7 cobalt, and chromium in ovarian cancer 8 cells, correct? 9 MS. O'DELL: Objection to 10 form. 11 THE WITNESS: Alone -- I'm 12 sorry. Alone or in combination? 13 BY MR. HEGARTY: 14 Q. Or all of the above. 15 A. Your question was it would 16 be unethical to do cell culture studies? 17 Q. Would it be unethical in 18 your opinion? 19 A. Not to do cell culture 20 studies. 21 Q. Have such studies been done? 22 A. I'm not sure about the 23 combination. There have been studies, a 24 number of studies that have been done in</p>
<p style="text-align: right;">Page 559</p> <p>1 I'm saying is yes, there is an increased 2 risk in exposure to talc because talc 3 contains, according to the J&J documents, 4 and according to other studies that just 5 looked at talcum powder products, 6 contains nickel, cobalt, and chromium in 7 elevated levels. 8 Q. My question is specific to 9 looking only at exposure to cobalt, 10 nickel, and chromium. Can you cite for 11 me any case-control studies showing an 12 increased risk of ovarian cancer in women 13 exposed to those three metals in 14 combination? 15 A. No, I can't. 16 MS. O'DELL: Objection. 17 Asked and answered. 18 BY MR. HEGARTY: 19 Q. It would not be unethical to 20 do such a case-control study, correct? 21 MS. O'DELL: Objection. 22 THE WITNESS: A case-control 23 study or an epidemiological study 24 which uses data from populations</p>	<p style="text-align: right;">Page 561</p> <p>1 cell culture. I can't cite them all, 2 because there are numerous that have 3 looked at nickel or cobalt or chromium in 4 cell culture studies, and many that have 5 been done in my own laboratory. 6 Q. Can you cite to me any such 7 studies that have done those tests in 8 ovarian cells? 9 A. I'm sorry. When you say 10 "any such studies," do you mean cell 11 culture studies? 12 Q. Yes. 13 A. Well, the Shukla study, the 14 Saed studies. 15 Q. So the Shukla and Saed 16 studies applied nickel, chromium and 17 cobalt to the cells? 18 A. I'm sorry. I'm sorry. I 19 thought you said talcum powder. 20 Q. Doctor, listen to my 21 question. My question is can, you cite 22 for me any culture studies that have 23 applied nickel, cobalt, or chromium or 24 all three to ovarian cancer cells?</p>

141 (Pages 558 to 561)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 562</p> <p>1 A. I cannot -- I have not seen 2 that literature, no. 3 Q. Those studies could be done, 4 correct? 5 A. Those studies could be done. 6 Q. They could be done in your 7 laboratory, couldn't they? 8 A. I have the facilities to 9 carry out those studies. 10 Q. You have not done those 11 studies? 12 MS. O'DELL: Objection to 13 form. 14 THE WITNESS: Correct. 15 BY MR. HEGARTY: 16 Q. You cited to the Cramer 2007 17 study, which I'm marking as Exhibit 18 Number 40. 19 (Whereupon, a discussion was 20 held off the stenographic record.) 21 (Document marked for 22 identification as Exhibit 23 Zelikoff-50.) 24 BY MR. HEGARTY:</p>	<p style="text-align: right;">Page 564</p> <p>1 of the first page on the right-hand 2 column. 3 A. Yes. 4 Q. The authors state that 5 the -- "First, the association is a 6 relatively weak" -- "a relatively weak 7 one; i.e., summary relative risk of 8 approximately 1.3." 9 Do you agree with that 10 statement? 11 MS. O'DELL: Objection to 12 form. 13 THE WITNESS: Number one, I 14 am not an epidemiologist so I'm 15 not testifying to epidemiological 16 odds ratio, whether that is weak 17 or not weak. 18 BY MR. HEGARTY: 19 Q. The next sentence says, 20 "Second, no clear increase in risk or 21 duration of use has been found in most 22 studies." 23 Do you agree with that 24 sentence?</p>
<p style="text-align: right;">Page 563</p> <p>1 Q. I'm marking as Exhibit 2 Number 50 the Cramer 2007 study that you 3 referred to in response to counsel's 4 questions. 5 A. Mm-hmm-hmm. 6 MS. O'DELL: Objection. 7 That misstates the record. I 8 never referred to the Cramer 9 study. 10 MR. HEGARTY: She cited it 11 in response to your questions. 12 MS. O'DELL: No, she did 13 not. But you may ask questions 14 about it, but that's not a proper. 15 MR. HEGARTY: Well, she 16 cited the Cramer 2007 article. 17 BY MR. HEGARTY: 18 Q. Do you find this article to 19 be a credible source of information for 20 you? 21 A. It was published in 22 Obstetrics and Gynecology. That is good 23 journal, reputable journal. 24 Q. And if you look at the top</p>	<p style="text-align: right;">Page 565</p> <p>1 MS. O'DELL: Objection to 2 form. 3 THE WITNESS: There are many 4 studies that do show that duration 5 plays a role. 6 BY MR. HEGARTY: 7 Q. That's not my question. My 8 question is do you agree with that 9 sentence? 10 A. I see. 11 MS. O'DELL: Objection to 12 form. Asked and answered. 13 THE WITNESS: I do not agree 14 that there is no clear -- there is 15 some evidence that leads to an 16 increase in risk associated with 17 duration of use. 18 BY MR. HEGARTY: 19 Q. So you don't agree with that 20 sentence? 21 A. So I do not completely agree 22 with that sentence. 23 Q. The next sentence reads, 24 "Third, the ability of talc used in the</p>

142 (Pages 562 to 565)

Judith Zelikoff, Ph.D.

Page 566	Page 568
<p>1 genital area to enter the pelvic cavity 2 has not been conclusively proven." 3 Do you agree with that 4 sentence? 5 A. None of these are -- none of 6 these sentences are cited or referenced 7 by the way. 8 It has not been conclusively 9 proven. I agree with the sentence. 10 May I -- 11 Q. You cited as well to the 12 Keskin paper. You cited that several 13 times, including in response to counsel's 14 questions. 15 A. Yes, I did. I recall that. 16 Q. The Keskin paper was an 17 animal study that did not show tumor 18 formation from application of talc, 19 correct? 20 MS. O'DELL: Object to the 21 form. 22 THE WITNESS: If you allow 23 me to specifically look for that, 24 please.</p>	<p>1 findings that led to inflammation 2 including an increased number of 3 follicles, and that goes to 4 biological plausibility. 5 BY MR. HEGARTY: 6 Q. Did you agree with that 7 finding? 8 A. That there were increased 9 number of follicles? 10 Q. Yes. 11 A. And the histopathology? 12 That there was foreign body 13 reactions and that there were infections, 14 I agree with those studies. 15 Q. Do you agree with the 16 statement that the author made that this 17 effect seems to be in the form of foreign 18 body reaction or infection rather than a 19 neoplastic change? 20 A. I'm sorry, could you tell me 21 where that might be? 22 Q. Again, in the conclusion 23 section that we have just been looking 24 at.</p>
Page 567	Page 569
<p>1 BY MR. HEGARTY: 2 Q. I'll mark it as Exhibit 51. 3 (Document marked for 4 identification as Exhibit 5 Zelikoff-51.) 6 BY MR. HEGARTY: 7 Q. The Keskin paper over in the 8 conclusion section on Page 927 says that 9 with regard to the reported effects of 10 talc, "This effect seems to be in the 11 form of foreign body reaction or 12 infection rather than a neoplastic 13 change." 14 A. Which is inflammation. 15 Q. And in this study it showed 16 no neoplastic changes in any of the 17 animal study, correct? 18 MS. O'DELL: Object to the 19 form. 20 You may answer. 21 THE WITNESS: It was -- he 22 did not find or they did not find 23 that there was neoplastic changes, 24 but they did find a number of</p>	<p>1 A. Mm-hmm-hmm. 2 Well, a foreign body 3 reaction can -- is an immunological 4 response. Whether it's considered a 5 neoplastic change, likely not. A foreign 6 body reaction does not necessarily -- is 7 not necessarily known as a neoplastic 8 response, correct. 9 Q. And you -- you didn't cite 10 that statement from the Keskin paper in 11 your report, did you? 12 A. Not that I recall. 13 Q. Do you agree with the -- 14 A. But my -- my role was to 15 define biological plausibility. So what 16 I did -- what I did put in my report were 17 the things that indicated to me that 18 there was inflammation. 19 Q. You agree with the 20 conclusions from the Taher paper? 21 MS. O'DELL: Object to the 22 form. 23 Doctor, it's in this stack. 24 THE WITNESS: Okay. Thank</p>

143 (Pages 566 to 569)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 570</p> <p>1 you. Oh, thank you. 2 BY MR. HEGARTY: 3 Q. Second page, Line 34, on the 4 second page. 5 A. In the abstract? 6 Q. Yes. 7 MS. O'DELL: Give me just a 8 moment, I'm sorry. I'll pull out 9 my copy. 10 THE WITNESS: I'm sorry, 11 should I wait? 12 MR. HEGARTY: I think Leigh 13 wants you to wait. 14 MS. O'DELL: Okay. Go 15 ahead. I'm sorry. 16 BY MR. HEGARTY: 17 Q. Do you agree with the 18 statement made in Line 34? 19 A. Perineal use of talc powder 20 is a possible cause of human ovarian 21 cancer? 22 Q. Yes. 23 A. I believe that it's more 24 than a possible cause. I believe that</p>	<p style="text-align: right;">Page 572</p> <p>1 counsel has it. I'll hand it to you. If 2 you'll -- 3 A. Oh. You mean the draft 4 screening assessment? 5 Q. Yes. Sorry, I was going to 6 it by the wrong name. It is Exhibit -- 7 A. 9. 8 Q. Thank you. 9 If you'll turn to Page 16. 10 A. I see that, Keskin et al., 11 2009, it's the first statement under 12 human studies. 13 Q. Yes. Right above that when 14 it refers to the Keskin and colleagues 15 2009. What was the conclusion that the 16 sentence beginning "while no cancer"? Do 17 you see that above human studies on 18 Page 16? 19 A. The conclusion, "while no 20 cancer"? 21 Q. Yes. 22 A. "While no cancer/precancer 23 effects were observed, Keskin and 24 colleagues noted the study's duration may</p>
<p style="text-align: right;">Page 571</p> <p>1 there's biological plausibility which 2 shows that it -- it could be, it is 3 linked to human ovarian cancer. 4 Q. So you don't -- you disagree 5 with that statement? 6 A. One could say that, taking 7 it literally, that it is certainly a 8 possible cause. I just believe that it 9 is greater than a possible cause. 10 MR. HEGARTY: Okay. Thank 11 you. I think that's it for my 12 time. 13 MS. O'DELL: Okay. 14 - - - 15 EXAMINATION 16 - - - 17 BY MS. O'DELL: 18 Q. Doctor, I just have two 19 questions for you. 20 I think you had the causal 21 assessment in front of you. 22 A. Do you mean the Taher? 23 Q. No, ma'am. The actual 24 causal assessment -- actually I think</p>	<p style="text-align: right;">Page 573</p> <p>1 have been too short to note these types 2 of effects." 3 Q. And in regard to -- and 4 that -- that statement's consistent with 5 the statements that you've included in 6 your report, fair? 7 MR. HEGARTY: Objection to 8 form. 9 THE WITNESS: Yeah. 10 BY MS. O'DELL: 11 Q. And then secondly you were 12 asked a question, several questions about 13 the actual Keskin paper itself. And I 14 think it's still in front of you. Do you 15 see that? It's Exhibit 51. Yeah, 16 Exhibit 51. 17 A. This is it, thank you. 18 Q. Okay. And I'll turn you to 19 the conclusion please, Dr. Zelikoff. 20 A. That is on Page 930? 21 Q. It's 927 actually. One of 22 the conclusions, at least the ones I -- I 23 was looking at. 24 927. Do you see that?</p>

144 (Pages 570 to 573)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 574</p> <p>1 A. I see. 2 Q. And counsel directed your 3 attention to the sentence that said, 4 "However this effect seems to be in the 5 form of foreign body reaction or 6 infection rather than neoplastic change." 7 Do you see that? Recall 8 those questions -- 9 A. In the conclusion section? 10 Q. Yes. 11 A. On Page -- 12 Q. 927. 13 A. "However this effect seems 14 to be in the form of a foreign body 15 reaction or infection rather than a 16 neoplastic change." 17 Yes, I see that. 18 Q. And if you'll look to the 19 next sentence, what also did the authors 20 conclude? 21 A. "Results of previous studies 22 are in favor of a neoplastic effect, 23 particularly in the ovaries." 24 And they conclude that more</p>	<p style="text-align: right;">Page 576</p> <p>1 dissolved in DMSO. 2 Q. Is -- is the data included 3 in this manuscript, was that part of 4 the -- the data you relied on in abstract 5 in reaching your opinions in this case? 6 A. In abstract form, yes. That 7 was all that was -- that was available 8 since this only came out a few weeks ago. 9 MS. O'DELL: Okay. I have 10 nothing further. 11 THE WITNESS: Accepted for 12 E-press a few weeks ago. 13 MS. O'DELL: Okay. I have 14 nothing further. 15 - - - 16 EXAMINATION 17 - - - 18 BY MR. HEGARTY: 19 Q. Dr. Zelikoff, in looking at 20 the Keskin paper, in -- in particular at 21 the portion of the conclusions section 22 that counsel asked you to read -- 23 A. Yes. 24 Q. -- the results of previous</p>
<p style="text-align: right;">Page 575</p> <p>1 experimental and clinical studies are 2 warranted. 3 Q. All right. And one other 4 question. You were asked about the Saed 5 studies regarding talc and cell culture, 6 both ovarian cancer cells and regular 7 cells. 8 A. Yes. I recall. 9 Q. And you were asked earlier 10 about the manuscript that's been marked 11 as -- 12 A. Exhibit 8. 13 Q. -- Exhibit 8. 14 Is it -- is it -- turn to 15 Page 5 of the manuscript please. 16 A. I see it. 17 Q. And looking at the top, did 18 Dr. Saed use Johnson's Baby Powder as a 19 part of the -- his treatment of cells? 20 A. Yes. It's Page 5, top, 21 treatment of cells, talcum powder from 22 Fisher -- Fisher Scientific or Baby 23 Powder from Johnson & Johnson, and the 24 numbers of the lots are given were</p>	<p style="text-align: right;">Page 577</p> <p>1 studies, that sentence? 2 A. Yes, I see it on Page 927. 3 Q. Can you cite for me any 4 previous studies to Keskin which were in 5 favor of a neoplastic effect? 6 A. Culture cell studies that 7 have looked at proliferation, increased 8 proliferation which was seen in the Saed 9 studies and in the abstract. 10 Proliferation is one hallmark of the 11 carcinogenic process. 12 Q. Doctor, listen to my 13 question. This publication was in 2008. 14 A. Okay. I'm sorry. 15 MS. O'DELL: 2009 I believe, 16 but go ahead. 17 THE WITNESS: 2009. 18 BY MR. HEGARTY: 19 Q. Received December 2009. 20 Published 2009. 21 The sentence reads: The 22 results of previous studies before 2009 23 are in favor of neoplastic effect. 24 What studies are they</p>

145 (Pages 574 to 577)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 578</p> <p>1 referring to?</p> <p>2 A. I don't know because it's</p> <p>3 not referenced.</p> <p>4 MR. HEGARTY: I don't have</p> <p>5 any additional questions.</p> <p>6 MS. O'DELL: Nothing</p> <p>7 further, Doctor.</p> <p>8 THE VIDEOGRAPHER: Stand by</p> <p>9 please. This marks the end of</p> <p>10 today's deposition. The time is</p> <p>11 9:03 p m. Off the record.</p> <p>12 (Excused.)</p> <p>13 (Deposition concluded at</p> <p>14 approximately 9:03 p m.)</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p>	<p style="text-align: right;">Page 580</p> <p>1 INSTRUCTIONS TO WITNESS</p> <p>2</p> <p>3 Please read your deposition</p> <p>4 over carefully and make any necessary</p> <p>5 corrections. You should state the reason</p> <p>6 in the appropriate space on the errata</p> <p>7 sheet for any corrections that are made.</p> <p>8 After doing so, please sign</p> <p>9 the errata sheet and date it.</p> <p>10 You are signing same subject</p> <p>11 to the changes you have noted on the</p> <p>12 errata sheet, which will be attached to</p> <p>13 your deposition.</p> <p>14 It is imperative that you</p> <p>15 return the original errata sheet to the</p> <p>16 deposing attorney within thirty (30) days</p> <p>17 of receipt of the deposition transcript</p> <p>18 by you. If you fail to do so, the</p> <p>19 deposition transcript may be deemed to be</p> <p>20 accurate and may be used in court.</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p>
<p style="text-align: right;">Page 579</p> <p>1</p> <p>2 CERTIFICATE</p> <p>3</p> <p>4</p> <p>5 I HEREBY CERTIFY that the</p> <p>6 witness was duly sworn by me and that the</p> <p>7 deposition is a true record of the</p> <p>8 testimony given by the witness.</p> <p>9</p> <p>10 It was requested before</p> <p>11 completion of the deposition that the</p> <p>12 witness, JUDITH ZELIKOFF Ph.D., have the</p> <p>13 opportunity to read and sign the</p> <p>14 deposition transcript.</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>1 MICHELLE L. GRAY,</p> <p>2 A Registered Professional</p> <p>3 Reporter, Certified Shorthand</p> <p>4 Reporter, Certified Realtime</p> <p>5 Reporter and Notary Public</p> <p>6 Dated: January 23, 2019</p> <p>7</p> <p>8 (The foregoing certification</p> <p>9 of this transcript does not apply to any</p> <p>10 reproduction of the same by any means,</p> <p>11 unless under the direct control and/or</p> <p>12 supervision of the certifying reporter.)</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p>	<p style="text-align: right;">Page 581</p> <p>1 - - - - -</p> <p>2 E R R A T A</p> <p>3 - - - - -</p> <p>4</p> <p>5 PAGE LINE CHANGE</p> <p>6 REASON: _____</p> <p>7</p> <p>8 REASON: _____</p> <p>9</p> <p>10 REASON: _____</p> <p>11</p> <p>12 REASON: _____</p> <p>13</p> <p>14 REASON: _____</p> <p>15</p> <p>16 REASON: _____</p> <p>17</p> <p>18 REASON: _____</p> <p>19</p> <p>20 REASON: _____</p> <p>21</p> <p>22 REASON: _____</p> <p>23</p> <p>24 REASON: _____</p>

146 (Pages 578 to 581)

Judith Zelikoff, Ph.D.

<p style="text-align: right;">Page 582</p> <p>1 2 ACKNOWLEDGMENT OF DEPONENT 3 4 I, _____, do 5 hereby certify that I have read the 6 foregoing pages, 1 - 583, and that the 7 same is a correct transcription of the 8 answers given by me to the questions 9 therein propounded, except for the 10 corrections or changes in form or 11 substance, if any, noted in the attached 12 Errata Sheet. 13 14 15 16 _____ 17 JUDITH ZELIKOFF Ph.D. DATE 18 19 Subscribed and sworn 20 to before me this 21 ____ day of _____, 20 ____. 22 My commission expires: _____ 23 24 _____ 25 Notary Public</p>	
<p style="text-align: right;">Page 583</p> <p>1 LAWYER'S NOTES 2 PAGE LINE 3 4 _____ 5 _____ 6 _____ 7 _____ 8 _____ 9 _____ 10 _____ 11 _____ 12 _____ 13 _____ 14 _____ 15 _____ 16 _____ 17 _____ 18 _____ 19 _____ 20 _____ 21 _____ 22 _____ 23 _____ 24 _____</p>	

147 (Pages 582 to 583)

A				
a.m	acceptable	act	86:5 268:2 284:24	agency
1:15 13:6 75:3,8	101:6	310:13,17 326:23	addressed	170:9
125:3,6	acceptance	action	487:2	agent
abide	158:11,13,16	14:6 24:13 151:10	addresses	237:8 262:15
158:17	533:20	381:21 400:15	352:2	325:11 365:22
ability	accepted	502:11	addressing	agents
86:6 190:2 240:4,7	97:18 112:4 156:18	activating	158:20	166:3
282:19 309:11,12	156:22 157:3,11	310:5	adequate	aging
345:2 412:3	157:20 176:9	activation	79:6,19 80:9 82:14	237:9
465:13 487:4	347:12 355:11,18	104:12,20 310:9	261:14	ago
511:16 565:24	489:12 576:11	active	adhere	21:18 44:23 57:20
able	access	326:4 421:16 555:8	158:17	162:7 173:12
161:13 184:22	8:18 9:7 54:11	555:11,12	adjacent	249:22 258:4,21
311:23 385:20,24	56:16 72:15	activity	60:2	387:19 451:9
389:9 537:17	147:13 172:15	344:16 364:1	administer	452:21 524:23
absolutely	203:14 276:17	477:13	13:16	576:8,12
201:18 207:18	332:5 339:23	acts	administered	agree
326:11 489:4	341:23 553:24	509:21	197:14	20:3,15 21:11 68:2
537:24 538:22	accessible	actual	Administration	68:12 79:10,21,23
absorbed	204:13 247:20	420:23 537:19	453:2	80:2,3 81:7,20
333:20	accumulating	571:23 573:13	adrenal	82:2,7,9,12 96:8
absorption	238:17	acute	153:16	99:17 100:7,14
284:18 465:4	accuracy	311:3 325:5,8	advance	109:7 133:22
abstract	65:21 66:14 70:11	327:8,15 328:4	133:7	135:12 201:11,24
56:16,21 104:6,10	70:16 412:24	354:19 355:1	adverse	228:12 244:11
104:16 122:11	accurate	358:23 359:1	31:8 120:11,13	245:10 257:14
208:11 374:11,18	45:7 580:20	add	264:4 368:13,21	262:6,17 289:2,5
406:11 407:3,6	accused	115:12 127:20	369:18 370:11	347:11,20 375:14
470:15 471:14	112:17	201:15 336:22	406:18 407:7	385:9 397:1,16,18
472:8 538:10	acetaminophen	394:15 395:23	519:21	398:3 400:6 401:9
570:5 576:4,6	331:15	450:7 478:18	advisory	401:18 414:19
577:9	ACGIH	546:24	15:12,16 67:12	416:16,16 425:5
abstracts	10:15	added	133:12 149:20	425:15 426:22
54:23 136:12	acknowledge	57:5 62:13 74:1	154:1 169:24	427:5,14,19 437:9
445:21 493:6	100:18 117:16	90:4 126:6 389:11	435:22 444:6	458:11,13 459:2
academic	acknowledgement	395:16	aerosols	470:6 471:2,4
6:21 78:21 79:1	79:19	adding	166:15 185:16	542:23 543:8,24
81:19 445:9,16	acknowledging	271:7 381:24	aesthetics	545:12,19 546:12
448:13 449:17	96:19 98:17	addition	160:12	546:18,22 547:2,5
519:4 553:3	acknowledgment	115:20 202:3 203:3	afindeis@napolil...	547:11 549:5
academies	79:7 80:10 82:14	492:4	2:20	550:10,12,22,23
149:23 444:3	83:1 103:9 108:7	additional	afraid	551:12,14,15
Academy	114:10 115:2	17:9,15 23:23 38:5	173:11 335:4	564:9,23 565:8,13
215:9,16 220:3	116:3 121:22	143:18 274:3	aftermath	565:19,21 566:3,9
444:4	212:15 582:2	336:22 388:18	260:10	568:6,14,15
	acquired	391:5 578:5	agencies	569:13,19 570:17
	86:8,15	address	182:16 316:9	agreed

23:7,18,20 24:1 24:17 196:15 398:2 423:1 424:22 agreeing 197:4 198:3 agreement 146:19 229:14 401:14,16,16,17 agrees 201:22 ahead 110:7 233:22 234:8 299:19 306:17 404:6 454:7 468:4 510:20 519:22 528:23 570:15 577:16 air 166:2,10 178:10,12 186:12,14,14 224:1 257:17,18 257:19,24 258:11 259:1,5,23 261:10 261:20 289:10,21 290:1,8,13,16,21 290:23 298:21 303:13,20 304:10 304:16 305:19 459:4,7,20 460:5 460:15,20 airborne 166:4 airway 197:8 airways 467:20 al 63:23 406:3,16 407:20,21 472:4 506:9 572:10 Alabama 2:4 ALASTAIR 2:18 Alice 410:3 452:16	Alistair 28:22 alleged 152:7,12 ALLEN 2:2 allergic 121:7,8 allow 188:23 209:14 211:10 215:20 261:16 262:2 335:5 566:22 allowing 319:3 420:6 alloy 123:17 alphabetical 51:13 alterations 11:10 478:11 altered 485:6 AMA 455:3 ambient 289:12 303:21 ambiguous 551:18 America 3:20 456:1 Ames 237:14 551:22 amosite 179:24 amount 99:1 158:18 182:1 253:18,23 266:1 288:4 292:6 296:7 365:8 510:1 amounts 292:12 316:4 372:21 amphibole 110:15,18 178:16 178:24 179:5,22 180:11 182:16	404:8,22 405:19 amphiboles 273:5 analogy 117:6 analysis 37:4 45:20,22 46:4 46:15,20 73:10 130:23 131:6,7,11 149:14 202:10 203:9,10 241:8 243:5,10 270:1,21 271:19 292:1,8 438:2,8 488:23 analytical 455:3 analyze 189:17 190:8,10 193:12 416:17,24 417:11,18 426:4 analyzed 186:19 248:8 449:8 449:14 analyzing 375:19 and/or 274:5 470:3 579:21 animal 137:10 138:7 156:8 156:10 233:5 279:19 291:10 295:9 309:18 334:16 335:15 346:17 351:23 366:11 368:2,6 372:9,14 373:18 426:18 429:1,5 464:11,13 465:9 505:23 539:3 542:15 566:17 567:17 animals 294:1 295:19 339:24 367:11 378:19 464:18 520:12 another's	81:2,6 answer 12:5 26:7 38:19 41:11 47:13 56:10 56:12 154:18 163:11 178:20 182:12 199:10 217:20 219:4 220:7,16 222:15 226:12 228:2 234:22 235:2 238:14 267:13,19 274:21,23 285:10 285:19 318:3,9 323:8,16 324:15 327:2,23 336:5,23 337:5 338:10 353:23 365:24 366:22 367:9 370:3 373:10 409:20 414:16 441:5 448:11 449:1 479:15 482:6 483:12 484:1,6 519:11 522:16 540:7 549:8 550:13,23 551:11,12,16 552:8,11 555:7 567:20 answer's 549:23 answered 38:16 41:12 67:20 69:9 73:13 138:18 164:11,12 195:5 217:18 219:2,3,5 221:17 241:20,22 243:8 285:17 293:1 310:19 314:21 349:8 361:7 409:16 440:14 465:23 483:15 489:18 490:5 518:6 559:17 565:12 answering	217:6 218:13 219:21 220:6 221:11 316:20,22 317:7 318:1,19 answers 366:21 582:8 anthophyllite 273:5,8 406:21 407:10 449:9,15 anti-inflammatory 470:12 antibodies 350:10 351:4 352:4 antibody 352:5 antigen 325:10 antioxidant 365:3 366:24 367:15,22 377:9 381:6 antioxidants 360:23 364:8 366:12,15 473:8 473:10 Anybody 525:23 anytime 392:12 apart 19:6 58:9,24 85:15 241:24 apoptosis 183:21 478:13 appear 95:5 110:14 414:24 appearances 2:1 3:1 4:1 13:13 appears 17:5 63:9 78:24 96:3,5 106:3 182:23 253:21,22 382:17 applicable 78:23 112:12 483:23 application
--	---	---	--	---

288:12,20,21	18:15 229:16 497:3	398:12,17,17	260:12,23 261:2,4	164:19 166:20,24
300:3 332:22	497:21	399:2,5 401:3	261:13,17 262:3	170:17,22 183:8
333:14 334:5,11	area	411:2 509:16	265:10 266:18,19	192:1 195:4 211:5
334:18 335:2,22	76:24 153:21	535:13,18,24	268:7,23 269:2,5	211:16,20 212:2
345:10 346:15	155:20 168:4	536:3 537:7,18	269:20 270:3,18	217:17 219:1
370:9,22 372:16	176:22 183:24	563:16,18	270:22 271:19	229:4 241:20
373:9,11 376:16	251:5 257:20,20	articles	273:1,4 274:6	243:8 256:18
379:12 439:5,16	269:22 286:21	26:15 67:18 76:18	275:8,15,20 278:1	261:19,21 267:21
510:3 566:18	298:16,16 300:4	77:4,14 78:6,11	307:19 328:17	275:11 293:1
applications	302:21 315:20	118:16,17 176:1,5	403:23 404:9,19	314:21 329:11
358:5,11	323:18 330:24	197:2 253:2	404:23 405:20	337:7 339:9 349:7
applied	331:19 342:19	385:18,21 428:18	408:12,21 410:8,8	361:7 376:24
68:17 82:10 202:1	356:19,20 371:9	447:11 448:4	414:2 415:8,15,19	390:23 393:24
279:20 297:17,21	371:10 490:19	534:6	416:7,18 417:4,6	394:4,10,11
298:1 320:1,12	492:2 514:17	asbestiform	417:13 449:9,15	401:13 409:16
321:4,23 322:18	535:18 554:8,12	178:22,23 179:16	450:21 455:9	412:19 420:13
323:1,12 324:9	554:18 566:1	182:18 243:21	456:5,6,13,21	422:22 436:17
333:18,19 341:11	areas	244:3,7,13,21,22	458:3,21 459:3,6	489:10,23 492:14
371:7 428:1	55:2 257:16 258:6	245:11,19,22	459:12,22 460:4	492:19 494:19
518:19 561:16,23	301:6 461:18	246:5,8,16,20,23	460:19 461:9,12	495:10 497:1,8
applies	490:1 514:23	247:4,9,13 248:2	461:16,19,19	507:9,13 508:21
68:5 80:6 81:17,18	arose	253:24 269:16	462:17 466:6	509:23 513:4,15
apply	490:12	270:18 273:1,3	485:12,13 491:10	513:18 515:2
69:1,3,13,15 82:3	ARPS	275:21 296:6	495:6 496:24	517:19 524:1,9,12
385:3 483:10	3:7	406:20 407:10	498:2,14 510:1,2	525:12 531:4
579:19	arranged	511:15	510:10,17 511:7	540:1 548:20
applying	54:19	asbestiform-like	512:8,18,21 513:9	549:18 551:7
279:16 373:21	Arsenic	244:18,19	518:20 521:2	555:2 556:12,13
439:11	9:20 457:11	asbestos	539:22 540:13,21	557:23 559:17
appreciate	art	108:13 110:16,21	548:6	565:12 573:12
235:11 495:17	252:24	110:21 160:22	asbestos-containi...	575:4,9 576:22
approach	arthritis	161:4,15 162:10	459:14	asking
67:8 77:11 375:12	347:23 348:2,5	162:23 163:6	asbestos-related	30:18 71:17 77:15
375:15	article	165:21,22 169:13	404:10 405:4,6,21	130:21 132:3
appropriate	61:7,19 62:3,6 67:9	169:14 171:3	ascending	160:5 162:17
204:22 338:14	67:11 76:16 97:5	178:7,9,11,17	509:8	169:20 193:6
431:14 432:6	97:9 103:4,8	180:5,12,17,23	Asia	219:20 235:3,4
560:5 580:6	112:4 113:11,11	181:2,11 182:9,10	277:7	317:6 378:2 398:1
approved	113:16,16 114:6	183:9,10 186:8,12	aside	417:21 468:16
228:8 519:3	115:4 118:5 150:6	186:17 243:23	156:21 552:19	478:11 516:7,14
approximate	150:22 151:22	248:20 252:19,21	asked	537:16
28:3	160:15 161:3,14	253:13,18,24	22:11 25:21 38:16	aspect
approximately	161:24 162:10,22	254:5,7,13 255:4	67:19 73:4 129:10	179:8
17:16 45:14 55:16	163:5 203:18,19	255:13 256:5,24	130:5 131:4	aspects
57:18 564:8	204:15 208:23	257:15,23,24	134:14 135:23	135:8 438:17
578:14	213:20 248:11,14	258:2,6,8,11,18	136:14 138:18	533:13 553:1,6
April	248:18 374:18	259:5,12,23	153:23 164:11,17	aspirin

469:3 470:8	120:12 179:7	73:4 127:18 172:24	374:7 492:7 522:2	488:5 492:22
assay	206:11 246:3	213:17 393:22	531:3 576:7	493:7,17 494:22
237:14	280:20 294:7	580:16	Avenue	495:6 520:24
assays	296:12 297:8	attorneys	3:13,17	536:16,21 538:17
237:14 551:22	329:24 347:17	16:11 19:7 28:6	average	539:5 575:18,22
assertion	349:19 353:3	40:1,3 53:5 63:10	242:23 243:2 428:9	back
126:8	358:21 360:23	171:9 174:21	aware	42:12 51:4 61:6
assess	361:1 383:9 401:6	202:16 203:11	18:5,7 19:10 22:21	62:19 75:7 79:14
73:5 126:23 127:10	417:20 471:6	237:5 276:12	48:23 98:14 146:9	83:18 85:17 86:11
128:2,15 130:6,16	480:20 481:8	390:24 412:13,20	148:1 152:7,12	101:17 102:11
131:4 134:6	508:10,18 509:10	August	159:4 174:24	118:11 125:6,10
184:12 237:15	520:13 536:8	168:21 176:6	175:3 190:1	126:1 160:24
251:5 475:16	565:16	Austin	291:24 294:14	162:6 164:2 196:5
assessed	association	3:13	295:4 340:15	196:8,9 216:8,10
451:12	6:9,15 60:14	author	345:14 358:4	218:5 222:17
assessing	205:24 207:8	55:7 56:17 60:16	372:12 403:12	233:11 277:21
42:10 69:14	306:24 397:14	104:19 117:1	412:14 413:24	314:4 319:20
assessment	564:5	176:19,20,20	414:3 441:18	328:7 338:23,24
6:13 8:13 42:22	associations	190:15 197:3	447:2 453:6,9,11	383:20 384:3
57:14,16 58:4	140:22 232:4,18	335:4 405:18	476:9 503:13	386:13 388:4,14
59:7,8,22 60:22	358:16	568:16	524:24 542:3	391:8 437:23
61:11 62:16 63:19	assume	authored		441:22 442:5
63:20 73:9 205:18	128:7 130:11 141:1	447:11,13 448:5,6	B	443:2 462:23
205:19 214:16,17	142:6 342:16	448:16	B	463:10 464:4
214:21 270:7	455:1	authorities	5:11 6:2 7:2 8:2 9:2	475:19 485:22
275:3 383:11	assumption	136:21 335:8,21	10:2 11:2 35:11	523:17 527:23
384:4,10,13,17,23	412:13,21 419:8	384:13	35:12 36:1,5	529:9
391:9,10,24 392:9	assumptions	authority	39:17 48:13 51:18	background
392:14,15 395:4	130:15	93:18 94:11 98:3	51:22 53:24 63:24	193:21,22 257:15
500:11,18 501:7	asthma	105:18,21 106:21	64:13 141:18,19	258:5,11,16,24,24
501:23 502:14	120:20 173:21	110:2 112:9 113:1	142:16 168:11	259:4,11,13,22
503:6,14,18,21	ATF	137:12 255:18	250:4 461:4 526:3	260:3,4,23 261:13
542:1,14,18	475:12 476:4,10	300:19 302:13	Baby	261:16 262:2
543:22 544:12	ATF1	303:3 320:23	45:21 73:1 90:4	443:2
547:7,15 571:21	474:22	322:16 426:12	187:3,20 188:2,14	BACON
571:24 572:4	ATF3	427:2 441:11	189:19 190:11,17	3:2
assign	474:22 475:16	authors	190:22 242:11	bacteria
137:11,14 503:20	atomic	77:12 83:10 104:22	246:24 247:13	237:15,18
assist	465:4	190:16 408:4	248:3,12,16 275:9	bacterial
16:11 132:19,22	attached	509:14 564:4	275:16 276:9	325:11,22
assisted	84:19 93:10 121:23	574:19	278:1,7 286:9	bad
132:2	580:12 582:11	autoimmune	287:18,23 288:12	516:5
associate	attention	172:23 347:24	292:2 295:23	balance
229:23 531:21	508:2,4 574:3	348:10	410:9,23 418:2,4	470:19
associated	attest	available	418:8,12 428:20	base
22:2 58:20 59:19	458:8	59:3 207:4,10	429:11,17 449:8	331:2 424:24
59:21 119:8	attorney	231:4 288:15	449:14 487:23	491:23 514:22

based 20:10 63:11,11 101:13 109:8 115:9 121:12 137:5 139:12 150:3 152:23 158:17 161:11 172:14 183:15 184:12 189:11,12 208:9 214:5 215:14,15 226:18 228:4,15 270:21 272:11 280:15 292:17 309:21 339:5 415:20,21 416:8 421:11 422:4 423:13,24 445:5 448:21 460:2,8,13 492:6	129:22 131:14 137:1 333:7 420:3 behalf 53:24 173:15 174:4 174:12 behave 327:4 behaves 305:22 belief 339:6 371:8 beliefs 199:11 believe 50:24 81:23 198:23 201:19 259:17 262:11 294:5,8 298:15 308:1,24 381:23 382:11 383:4 426:19 433:3 468:22 554:2 570:23,24 571:8 577:15	504:7 beyond 391:5 422:17,17 big 238:23 301:19 bill 17:10 132:10 bind 271:14 420:8 binder 10:11,13,14,17,19 10:21 11:6,8 144:3 273:15 386:22 387:1,7 binders 50:23 51:6,7,9,11 52:2 142:5 385:18 binned 238:18 bins 55:1 239:10 bio 251:12,13 bioavailability 242:8 bioavailable 341:4,16,19,21 biologic 24:13 68:3,13 69:14 126:23 128:15 134:2 135:14 137:19 138:4,15 144:12 144:24 145:14 148:13 149:6,15 150:11 151:4,21 156:16,23 157:4 157:11,20 172:2 189:18 190:8 193:12 201:12 216:2,15,20 217:13 218:17 220:12 221:3,15 222:6,8,21 223:20 238:11 239:16 241:10,18 243:5 263:15 265:7	266:12,20,24 270:2,20 276:22 282:12 290:17 298:9 311:16 333:17 381:18,19 383:1 398:8 433:17 440:10,23 499:23 506:13 520:5 546:4 biological 73:5,15 127:11 128:2 129:3,13 130:7 131:5 137:7 151:18 152:1,23 189:12 190:10,19 198:18 199:5,22 200:7,10,16 201:14,20 202:3 205:5,8,20,23 216:4,7,11,23 220:1 223:23 224:5,12 233:11 234:11 240:2 256:9,10,19 257:1 262:19 263:12 265:11,18 270:6,7 271:3 275:3 278:3 278:8,13 281:20 282:13 284:6,24 292:17 296:12 299:21 302:3,5 311:24 320:16 341:24 349:2 350:6 353:14 356:9 360:19 361:15 368:4 372:7 373:24 376:22 377:13 382:6,16 400:12 400:13 401:21 431:17 432:5,22 433:23 440:18 441:9 469:1 471:5 475:7,20 504:4 506:17 513:10 553:4 568:4 569:15 571:1	biologically 128:16 306:4 313:8 349:16 350:1,19 382:6 416:19 432:11,15 470:10 504:10,15 505:16 512:23 biologist 553:11 biology 94:22 165:4 166:1 342:12 bit 72:16 124:19 150:21 187:18 265:24 383:24 441:21 black 51:8 197:11 273:14 blood 158:15,22 176:13 300:15 301:10,11 353:3 bloodstream 468:10 Blount 410:3 452:17 494:19,21 495:5 Blount's 452:6,20 board 15:16 67:12 149:21 435:23 519:4 531:22 board-certified 556:1,5 boards 15:12 133:12 149:20 154:1 169:24 229:24 bodies 444:12 509:9 body 54:5 94:22 153:24 154:24 155:7 165:3 198:20 205:6 215:24
--	---	--	--	---

216:19 217:10	Bradford	C	556:21	164:9,21 165:5,10
218:2,14 231:10	73:10	3:3 6:19 63:1,4	calling	165:15 167:13,20
234:12 261:9	brands	65:11,13,20,24	339:2	167:20,23 169:7
262:20 309:17	276:23	66:15 287:10	calls	171:2,19,20 172:3
316:4,7 325:12,21	break	363:13 418:22	28:14,16	177:20,23 178:4
326:13 327:12,17	32:7 74:9,16,20,21	419:5 421:24	Canada	191:9 192:10
328:16 329:2	75:5 125:4 195:23	457:5 487:18	61:11 63:20 205:12	193:13,17 194:10
332:6 339:23	196:3 277:15,19	524:4 527:18	205:16 207:1	194:14,15,18,21
341:22 355:5,7	338:21 383:18	C-reactive	213:2,5,11 214:16	196:23 201:9
364:20 365:2,21	386:19 442:3	309:18 360:6	214:23 219:17	205:9 206:2,13,17
371:4 444:7	485:20 520:16	CA-125	289:24 384:20,22	207:10 208:15
465:14 466:2	523:10,15 536:23	352:20 353:2,2,8	391:9,10,16,18,19	209:1,8 210:2
470:7 518:12	breaking	353:13,20 354:2	392:1,7,13 477:18	216:3,12,16,22
567:11 568:12,18	298:6	cadmium	477:24 500:11,17	217:4,15,23 218:7
569:2,6 574:5,14	breast	304:1 307:17,17,24	501:6 502:13,14	218:18 219:24
body's	172:22 173:24	308:23 309:3,24	503:5,19 542:1,1	221:5,8 222:10,22
324:23 366:6 402:9	breathe	310:13 311:17	543:21	226:22 227:5,10
402:21	460:5	312:7 323:11	Canada's	230:7 231:7,14
body-type	brief	465:2,5,7 466:2,4	384:10 547:6	232:22 233:17
499:17 541:8	251:12,13 384:7	466:15	Canadian	234:6,17 239:17
Boer	529:1	cainogenesis	58:3 59:6 205:13	240:13 250:11
502:22	briefly	123:1	205:17 214:23	254:5,8,13 255:5
Boers	47:3 169:9 443:2,5	calculations	215:22 216:18	255:14,22 256:15
197:10	bring	295:16,18	217:11 220:10	257:2,12 258:7,9
boiler	50:16 63:15 168:23	call	222:5 384:3,12,17	258:12,20 259:6
173:22	345:2 438:16	20:18,22 21:10,13	395:4	260:5,15,16,20
book	bringing	21:16 23:1,7,14	cancer	263:16 264:20
78:15 111:10	284:5	23:17,20,24 24:7	6:11 7:18 8:7,11,11	265:2,8 267:2
112:19 138:20	Broadhollow	24:11 25:5 31:1	9:16 21:22 22:12	271:16 278:14
163:14 534:8,14	2:19	33:19 113:3	22:24 24:24 25:5	280:5 281:10,17
534:15,21	brought	151:16 196:11,15	25:12 29:13 31:4	282:12,18,23
books	25:8,11 50:23	239:3 285:10	31:8,24 32:5,10	283:4,14,16,21
534:21,22 535:2,7	56:18	311:6,7 317:5	60:16 62:17 73:2	284:8,11,17
bottle	buildings	318:24 319:11	73:7,12 86:9,16	285:14,23 290:19
410:23	459:21	328:19 336:21	87:3 116:11,21	292:23 302:9,16
bottom	built	337:1 385:4	118:8,23 120:14	303:7 306:5,13
202:9 203:1 359:18	258:3 261:2	476:23 515:17	123:24 124:9	307:1 311:18
420:2 431:16	bundle	called	127:1,13 128:6,9	328:10,14 329:12
433:9,16 436:6	244:9	55:6 57:14 94:24	128:18 130:8,13	329:18 330:3,18
469:21 495:15	burning	106:16 107:16	130:18 131:1,9	330:20 331:3,9,17
496:12 508:5,14	173:2	121:7 122:12	141:14 148:15	331:22,24 332:2
Boulevard	burst	199:10 243:21	149:7 150:16	342:5,7,12,17
1:14 3:3	103:23	273:2,3,4 303:21	152:8,13,21 153:5	347:22 348:3,7,13
bound	business	326:10 328:3	153:21 154:9	348:18 349:3,12
341:1,16	14:21	329:2 429:20	155:2,8,14 156:17	349:14,17,20
boy		455:24 458:16	156:24 157:5,13	350:2 351:2,10,14
141:19,20	C	476:22 513:24	157:22 163:21	351:16,21 352:7

352:10,18,24	264:21 326:9	193:2,8 354:10	440:24 467:1	155:8 183:3 190:2
353:4,9,16,20,21	347:13 499:20	career	468:5 487:2	206:17,22 208:14
354:4 355:13	541:11	86:11 215:13 392:8	500:16 501:8	208:24 217:21
356:7,8,10 358:24	Caner	534:1	505:7,13 506:1,19	221:4 237:1,1
359:2,13,18 360:3	6:17	carefully	509:17,20 520:4	240:12,18,22,24
360:15,15 361:1,5	capable	427:18,20 580:4	540:11 547:14	253:19 255:4,13
362:1,4,10,13	292:7,9	carried	576:5	258:6,9,12 259:5
363:11 366:3	capacity	288:23	case-control	259:19 260:5
369:13 376:10	20:11 192:7 314:7	carries	232:1,16 556:22	278:14 282:18
381:15,20 382:2,7	421:7	235:14 425:24	557:18 558:10,19	290:21,24 292:23
383:3 385:14	capillaries	carry	559:11,20,22	296:8 298:17
392:23 397:11,16	468:9	562:9	case-controls	299:13 300:20
398:9 400:4,20	captured	carrying	206:7	301:5 302:14
401:7 415:8,16,20	134:18 135:4	202:17 203:1 344:3	cases	303:5 304:4,16,17
431:19 432:5,12	Car	359:19 477:9	1:8 76:19 78:2	304:22 307:18
432:17 433:24	37:6	cascade	111:17 115:8	312:14 313:18
440:19 441:14,15	carbon	544:2 545:9 546:9	121:5 124:5	315:16 320:20
444:14,19 469:4	197:10	case	174:14,18 175:4	323:1,12,14,17
470:8,21 472:6,16	carcinogen	15:2 16:12,17 17:4	176:1 326:5	324:10 326:20
473:4,17 474:2	158:22 159:1,2	17:9,23 18:3,6,10	490:15	328:10,14 329:12
475:5,17 476:5	182:14,15 245:3	21:6,21 24:2	catalase	329:18 349:11
478:20 479:21	245:17,20,24	25:22 26:2 30:1	365:4	355:12 358:7,24
486:9,14,21,24	256:7 316:17	34:6,11,20 35:21	categories	382:7 404:9,23
500:1 504:1,11,16	368:12 369:23	44:2 47:5 62:7	238:21	405:3,5,21 420:8
505:19 508:11,19	417:9 425:15	64:3,24 66:21	Category	423:18 487:5
509:11 511:11,16	510:18,23 512:8	67:1 69:2 71:21	245:24 416:7	504:1 511:16
513:13,17 514:2	518:9,10,24 558:8	82:11 84:6 88:21	Catherine	544:3 545:10
514:11 518:5,21	carcinogenesis	96:1 105:24	132:7	546:10 570:20,24
520:6,10,14 532:7	122:13,17 123:23	110:14 117:5	caught	571:8,9
532:13,20 533:3,8	326:17 345:4	144:24 148:9,17	39:11 467:20	cause-and-effect
544:3 545:10	347:17,18 431:4,6	159:3,6 163:16	causal	200:2,13
546:10 552:22	431:13 476:13	170:24 171:5	154:2 201:4,22	caused
553:10,11,17	499:6	173:4,5,10,15	207:11 397:9	291:21 308:23,24
554:23 556:15	carcinogenic	174:1 175:2,3,16	500:17 503:5,21	309:23,24 312:19
558:3,12,21	11:18 156:3,7	175:20 184:14	571:20,24	312:20 314:5
559:12 560:7	180:21,22 190:3	198:23 199:7	causality	347:14 480:18
561:24 570:21	280:14 281:24	201:6 212:5 216:5	202:2	481:6
571:3 572:16,20	283:10 285:6	227:22 228:10,19	causation	causes
575:6	322:12 344:16	249:12 254:3	24:12 73:6 131:6	62:17 73:2 118:7
cancer-causing	345:4 577:11	273:12,21 290:5,6	131:12 155:11	152:21 153:5,21
166:3	carcinogenicity	300:1,2 301:7	201:13 202:8	154:9 158:14
cancer-related	42:11 44:4,13	328:16,17 330:19	205:4,23 206:1,11	165:9 209:8 210:2
404:24	90:10 281:5 282:4	370:19 377:5	206:12 256:20	217:1 271:11
cancer/precancer	342:23 343:3,5,12	390:9 392:22	259:20 382:1	293:6 301:17
572:22	423:10 425:10	394:23 395:24	400:17 486:24	302:7 306:3
cancers	488:7 530:1	396:17 399:4	cause	330:12 371:15
158:15,22 194:14	carcinoma	424:23 438:2,8	86:9,16 126:24	420:23 477:2

486:8,14 510:24 511:1 causing 156:17 157:5,13,22 303:14 344:5,8,11 344:15 500:1 507:1 513:12 cautious 269:23 cavity 499:9,15 541:7 566:1 cell 94:21 95:3 137:9 191:19 192:3 193:2,7,8 234:19 235:21,21 237:7 257:9,10 297:11 300:6 308:11,17 310:23 321:15 325:11,14 328:2 364:1 366:10,15 367:3 368:2,6 372:14 373:18 375:19,23 376:6 376:10 379:6 382:8 420:6,7,18 420:19,20 421:2,7 421:12,14 425:9 464:14 474:10 484:23 517:13 539:3 551:2 560:6 560:16,19 561:1,4 561:10 575:5 577:6 cell-mediated 326:7 cells 11:11 103:21 183:20 194:15 197:8 236:1 291:2 293:24 294:3,10 294:17 296:18 297:6,7,12,17,21 298:2 300:5 301:21 308:10 311:1 324:19	325:18 356:18 357:12 364:5 368:13,21 370:11 370:24 371:15,20 372:9 376:15 485:6 516:17,22 549:22 550:20 560:8 561:8,17,24 575:6,7,19,21 cellular 470:1 cement 461:19 center 185:9 224:3 260:2 260:11 342:5,8,17 443:18 460:21 513:17 514:2 certain 50:21 99:1 115:8 137:5 241:16 255:15 257:15 258:6 260:24 271:14 289:12 308:4 362:6 369:10 406:2 415:4 461:10 467:7,12 468:11 489:24 495:12 503:21 551:1,1,4 certainly 22:20 88:6 98:7 99:24 102:16 111:18 171:13 198:10,12,15 199:4 204:24 239:11 312:9 314:13 315:13 367:10 407:20 417:5 425:1 429:1 458:9 460:2 475:12 512:22 571:7 certainty 41:1 52:12 CERTIFICATE 579:2	certification 579:18 Certified 1:16,16 579:13,14 certify 579:5 582:5 certifying 579:22 cervix 371:14 cetera 119:13,13 120:22 120:22 124:3,4 140:24 155:17 365:5 452:15 541:8 chair 513:24 514:1 chance 50:13 84:9 107:11 chances 87:2 change 215:14 234:15 257:9 278:2,8,12 291:1 294:2,3 312:4 366:24 396:21,23 485:12 513:10 567:13 568:19 569:5 574:6,16 581:4 changed 389:11 395:20 474:23 485:10 changes 72:5 215:21 236:12 236:19,20 237:1 271:15 285:5 297:4,7 305:18 310:4 345:3 371:11,15 375:21 377:8 381:9 474:19 475:11 517:14 567:16,23 580:11 582:10 chapter 534:16 535:13	chapters 78:15 111:11 112:19 138:20 163:14 534:9,14 535:5,6,9,11 characteristics 311:9 427:16 characterized 308:4,19 charge 281:19 372:6 charging 15:24 charity 15:4 chatter 25:14 check 144:4 checking 540:6 chemical 44:5 172:22 173:24 181:22 237:8 242:6 263:10 305:7 324:3 chemicals 5:23 42:1 43:21,24 44:3,7,7 90:3,7 184:11 185:1 231:9 272:23 313:14,16,21 322:23 423:7,14 425:2,4 487:17,22 488:3 491:4 528:3 528:10 529:22 chemist 186:10 Chemistry 109:11 Chemistry's 111:1 Chemistry.com 7:13 chemists 251:22 chemotactic	356:22 Chicago 4:9 child 94:19 China 277:7 chloride 536:13 Chris 28:17,19,21 482:13 CHRISTOPHER 2:9 chromium 8:19 77:21 120:10 120:19 121:2,2 176:11,16 272:19 280:22 283:3 286:1 287:17 288:11 289:8,19 289:20 290:10,17 291:16 293:10,10 293:11 298:1 314:16 315:22 321:3,9,11,13,14 321:19 322:18 417:23 418:3,6,10 419:5,7 421:6,17 516:24 517:19 518:16 537:22 556:16 558:12,13 558:22 559:6,10 560:7 561:3,16,23 chromium-3 321:17 419:10 420:3,5,12,17,22 420:22 421:1,12 421:21 537:2 chromium-4 421:18 chromium-5 421:19 chromium-6 120:18 321:18,20 321:22 418:1,7,12 419:10,15 420:20 421:18
--	--	---	---	--

chronic 10:6 119:8 311:3 325:6 326:22 327:8,15 328:6 329:23,24 347:14 347:21 348:8,17 348:23 354:20 355:11 357:3,5,13 357:15 358:7 394:9 469:23 470:19 504:9 505:2 509:5,7	218:1,23 219:7,14 220:5,10 222:4 231:12 232:6 242:10,16 246:21 247:2,2,11 248:1 249:24 255:17 279:14 280:3 281:2,16 282:2 285:12 291:3,19 296:16 299:7 300:18 301:2 302:12,21 303:10 308:21 313:5 315:15 334:8,23 335:8 343:18 344:4 346:13 351:8,15 356:6 361:3,17,21 371:22 374:1 377:16 378:7 388:16 389:9 392:11 405:6 407:17 414:10,12 414:18,19,21 417:2 426:7,11 427:2,24 428:18 429:23 431:1,8,11 431:22 432:8,20 432:24 433:2,14 436:24 437:10 441:10 445:23 446:23 447:10 448:4 450:10,19 451:3 453:10,12 469:19 471:9,11 471:12,24 473:14 473:24 474:3 475:14,18 477:12 478:4 479:6 480:15 502:3,10 511:24 533:23 537:17 539:2 541:3,12,17 550:1 552:3,10,14 558:1 558:9,18 559:10 561:1,6,21 569:9 577:3	cited 50:23 54:4,5 61:19 98:2 105:18 112:17 124:11 154:3 159:14 204:15 213:19 214:10 215:23 216:18 220:10 232:13 281:12 295:14 374:17 382:7 391:9,18 405:12 406:4 432:7 447:12 448:5,15 449:18 452:5 457:1 469:13 500:24 502:2,7 539:11 562:16 563:10,16 566:6,11,12 cites 47:21 48:7 citing 113:3 410:11 431:12 472:19 Citizen's 9:14 City 3:4 173:8 259:23 260:13,24 290:2 claim 173:20 450:20 claimed 410:7 556:3,9 clarify 516:3 class 30:7 31:15 245:23 256:7 425:14 511:5 558:7 classification 155:19 156:14 548:10 classifications 155:16 classified 159:2 178:8 180:17 180:21 185:13	245:2,12,16 246:6 256:6 316:16 320:19 490:6 511:4 518:9 clear 39:15 193:2,7 207:24 232:9 265:11 275:1 480:22 500:21 522:9 564:20 565:14 clearance 402:9,21 clearly 225:9 345:19 479:13 546:15,24 client 173:1 clinical 294:22 476:4 557:14 560:2 575:1 clinically 360:13 361:4 clinician 514:10 515:1 clip 287:12 clipped 103:15 close 408:11 459:11 closely 486:23 closer 137:5 co-author 163:7 co-authors 164:1 co-investigator 380:3 cobalt 272:19 280:21 283:3 284:16,18 285:24 287:17 288:10 289:9,20	291:16,18 297:21 314:16 315:22 320:11 516:24 517:18 518:15 534:5,8,12,17,23 535:1,11,14,18 556:16 558:16,22 559:6,9 560:7 561:3,17,23 cogent 431:17 432:5,22 433:16,22 cohort 206:8 232:2,16 416:8 coincidence 90:16 91:3,7 colder 124:18 colleague 25:10,14 colleague's 448:23 colleagues 25:9,18 29:7,10,12 29:13 254:20,22 260:10 292:10 380:19 399:19 532:8,21 554:22 572:14,24 collect 186:13,13 college 86:11 column 508:5 509:4 564:2 columns 456:4 combination 558:22 559:14 560:12,23 come 20:8,14 27:24 62:19 72:12 91:14 95:10 126:1 136:16 150:2 166:8 176:19
--	--	--	--	--

200:7 215:15 222:17 227:17 249:4 325:18 327:18 328:18 329:1,6 335:5 374:14 380:14 408:2 414:7 419:15 441:22 443:15 445:21 495:21 502:20 comes 111:6 186:17 353:19 368:1 443:16 536:6 555:8 comfortable 20:10 22:8 coming 33:20 54:15 158:20 229:15 261:5,6 280:7 299:24 310:10 347:4 391:14 comment 160:21 192:2 208:20 215:1,11 414:13 424:21 436:7,21 437:3,13 commentary 155:2,5 437:1,10 commented 159:10 437:7 comments 215:15,20 424:15 437:14,17,20,22 Commerce 2:4 commercial 181:4 409:9 commercially 181:2,6,8 commission 582:21 committee 2:21 123:22 553:24 common 75:24 76:7,23 77:9	80:14 83:8 87:3 89:18,24 95:9 97:20 101:13 104:2,10 105:1,2 106:5 109:16 114:2 117:8 121:1 223:13 283:14 333:7,11 335:9,20 363:2,4 434:19 489:13,20 commonalities 193:19 194:11,13 194:20 commonly 104:3 283:13 communicated 21:3,4 34:4 444:12 444:17 communities 157:7,19 176:17 347:13 community 156:18,20,22 157:3 157:10 158:16 176:10,12,12 212:23 355:10,19 company 251:16,17,18 448:1 comparable 376:14 compare 85:16 182:9 183:9 183:13 277:3 comparison 6:22 7:6,7,9,12,14 7:16,20 8:10,12 8:15,17,20 9:6,9 9:11 236:2 276:21 295:12 376:20 427:22 compelling 57:5 201:19 374:16 501:11 compilation 5:15 76:2 complaining 353:19	complementary 374:16 complementation 53:4 completed 46:9 56:3 62:6 87:10 411:18 451:7 completely 168:21 229:11 421:3 565:21 completion 54:12,13 64:2 522:1 579:8 component 420:23 516:15 components 188:1,14 189:19,24 308:4,20,22 310:22 341:2,17 422:9 467:3 composition 181:23 242:6 305:8 305:23 compound 536:12,14,24 compounds 42:11 536:15,20 comprehensive 131:15 132:23 computer 389:21 concentrate 290:2 concentration 262:21 263:6,22,23 265:13 288:5,22 289:4 369:9,11,12 370:4 372:23 439:21 440:3 459:8 461:16,23 485:4,11 concentrations 124:3 286:18,23 287:6,24 290:7,23 293:8 458:22 459:4,9,22 460:22	469:23 480:18 481:6 551:4 concepts 489:21 concern 98:8 145:14 325:4 concerned 137:19 144:12 concerning 138:4 141:13 144:24 254:4 391:20 484:23 531:15 concerns 432:15 conclude 62:16 206:9,15 470:19 488:2 496:3 574:20,24 concluded 152:20 153:4,9,20 154:2,8 180:5 205:7 216:1,20 217:12 218:15 221:2 222:6,20 529:18,20 578:13 concludes 90:7 208:13 528:10 conclusion 20:9 41:3 54:16 150:19 155:14 156:9 158:4,6,10 207:14,16 208:12 208:22,22 209:5 310:10 316:11 374:14 397:4,6,8 397:22 398:4 416:5 434:3,10 435:3 437:24 496:7,17 497:22 510:15 511:7 567:8 568:22 572:15,19 573:19 574:9 conclusions 90:20 140:21 154:24 155:10	511:14 569:20 573:22 576:21 conclusive 253:22 conclusively 162:5,9 426:15 540:7 546:15 566:2,8 concur 90:10 422:23,24 423:5 488:12 530:3 concurred 423:23 concurrently 362:5 concurring 424:14 conditions 255:15 461:11 conduct 455:3 conducted 453:2 confer 73:5 92:12 conferences 555:20,23 confidence 472:20 confident 121:11 151:24 confidentiality 146:7,11,16,18 229:14 confines 178:11,12 confirm 65:21 66:14 70:10 494:17 501:14 509:19,21 confirmed 501:19 conflicts 229:6 conform 81:21
--	--	---	---	--

confusing 94:5 111:3	18:17 19:3,8,11 20:5 33:9 121:8	454:23	16:16,18 35:13,14 36:18 42:8 50:9	187:3 203:8 206:18 209:1,9
confusion 84:23 85:6 527:7	contacted 18:9,22 19:1 25:1	32:2,8 33:2 328:8 339:2 521:2	63:1 65:16 92:14 92:17 94:9 95:21	210:7 219:18 225:2 233:18,24
Congress 3:13	32:15 141:6,12,16 148:15,22 149:8	continued 32:16	386:14 389:16 393:4,15,20	238:2 244:3 245:4 245:13,18 246:1,8
connection 116:18 505:17	152:16 163:15 165:1,7 184:13	contract 455:2	398:16 414:8 430:4,9 515:13	248:22 250:2 259:24 260:24
consider 102:16 104:10 184:8	254:2,14 332:19 333:2,4 531:6	Contrary 472:10,15	542:20 544:14,15 544:16,20 570:9	262:8,21 264:22 270:23 271:21
considerations 487:3,3	532:9,11,24 533:8 533:11	contribute 90:8 262:14 343:1 343:3 423:8 425:7	corporate 411:16	273:17,18 276:4 279:1,5,11,17,22
considered 51:20,24 52:5,20 93:20 141:24 156:11 184:15 193:24 204:5 230:5,21 231:3 250:13,15 289:15 427:18,20 429:13 554:21 569:4	contain 180:20 275:20 286:24 406:20 407:9 451:16 513:9 521:2 527:17	470:2 488:6 528:11 529:23	correct 15:5 21:8 22:22 25:22,24 26:4,20 26:21 27:1,20 29:16 33:10 36:6 37:8 39:8,19 43:7 45:23 52:1 56:3,7 58:5,6 62:7,8,9,11 66:8,21 67:1,6,16 68:6 70:19 72:11 72:20 73:2,12,21 77:5 82:4,18 83:1 89:10,11,18 90:1 96:11,20 98:4 100:19 105:24 108:9 113:12 117:18 127:2,15 131:19,21 133:4 134:2 135:16 139:2,17,22 140:9 141:23 148:9,18 149:9,10 153:22 154:22 155:3 156:3 159:8,9,11 159:15,18 163:18 163:19,21 164:6,7 164:10 165:10,15 166:19 167:15,16 167:21 168:4,8,9 168:11 170:20 171:1,3,6,15 177:2,7,10,13,20 177:21,24 178:4,7 184:2 185:4,21 186:5,9,12,22	280:5 281:6,18 282:5 283:4,22 289:7,11,15 292:8 292:13,15,23 294:17 296:18 297:22 298:2,3 303:15 304:5,18 305:5 306:6,13 307:5 308:2 309:1 309:24 312:20 315:10 321:18 328:10,14 329:12 329:22 330:3 331:11 332:2,23 334:11 335:2 336:3 340:4,12,12 340:13 343:7,14 344:6,9,12,17 345:17 347:9,15 347:23 348:4,9,14 348:19 350:3,11 352:11,18 354:4 355:13 357:1 358:2 359:14,23 359:24 360:4,15 363:14,18 364:2,3 364:7,11,17,23 365:15 370:12 378:5 379:22 387:20 390:4,5 398:9,10,18,19 399:4 403:24 406:9,10 411:19 414:23 415:22 416:9,20 417:4,14
considering 470:9 472:6	53:16 54:6 65:24 66:15 70:11 147:7 269:3 389:5 515:20 517:4 521:1	contributed 83:9 416:12		
consist 313:15	contained 53:16 54:6 65:24 66:15 70:11 147:7 269:3 389:5 515:20 517:4 521:1	contribution 511:10		
consistent 200:1,12 207:6 472:21 483:8 499:22 500:5 505:6,12 506:18 506:23 509:16,18 573:4	containers 37:5	contributions 73:23 139:10		
constituents 240:6 271:6 298:7 425:13 467:8 513:6 517:9	containing 51:11 245:11,21 246:7 453:5 455:12 461:24 498:12	control 304:8 305:17 579:21		
consulted 170:10	contains 542:18 559:3,6	controls 375:17		
consulting 14:21	contaminated 462:13	controversy 437:4		
consumer 9:18 189:4	contamination 404:8,22 405:19 419:19 451:13 496:24 498:2,15	conversation 33:12		
Cont'd 3:1 4:1 6:2 7:2 8:2 9:2 10:2 11:2	contend 410:6 432:10	conversations 20:24 274:15,18,22		
contact	content 166:17 248:6	convert 321:16		
	contention 299:11	converts 420:21		
	context 56:19 362:17	convincing 198:21		
		coordination 53:4		
		copied 75:20 98:23 103:7 107:23 108:9 116:1 119:24		
		copies 52:2 142:2		
		copy		

420:9,10,18 421:2 422:5,6 425:23 429:6 430:1,2,19 431:24 432:12,17 433:3 434:14,15 435:16 444:10 445:11 446:24 448:13 449:10 450:22 451:14,19 452:3,7,18,21 453:6,10,14 454:21 455:13,22 456:1,2,6,9,22,23 457:2,13,15 458:3 458:12,17 459:15 459:24 460:5 461:9,20 462:2,18 464:12 465:14 469:16 473:4 474:2,15 475:5 478:2,3,24 484:21 487:10 488:18 516:19 521:12 525:21 527:19 530:9 531:8,16 532:8,13,22 533:3 533:5,10,14 538:12,17 539:10 540:3,11 541:1,2 541:13 547:7,11 547:15 548:2,17 548:19,21 553:12 556:22 557:19 559:20 560:8 562:4,14 566:19 567:17 569:8 582:7 corrected 197:22 527:15 corrections 580:5,7 582:10 correctly 407:1 correlate 428:19 correlated 351:9 360:14 361:4	373:17 correlating 352:9 372:13 correlation 352:3 428:16 correspond 66:7 95:23 corresponding 176:20 correspondingly 103:3 cosmetic 31:13 159:18,22 160:4,9,10,11,15 250:9,10 333:12 451:13,16 452:14 453:3,4 455:10,12 455:19 495:12 496:9,21 497:24 498:12 512:9 539:20,21 540:19 Cosmetics 8:14 Costa 537:21 COUGHLIN 3:16 counsel 16:1 17:4,10 34:5 34:10 58:10 59:1 126:9 132:11 139:17,19 140:16 142:1,10 143:1,21 144:10,22 148:16 149:8 159:17 163:16 165:2 167:9 170:20 171:1 212:8 222:17 254:3,15 273:17 275:14 276:3 332:19 385:11,22 390:4 393:14 412:15 447:5 508:1,2,21 532:11 533:1,9,12 540:2 572:1 574:2 576:22	counsel's 454:6 563:3 566:13 counsels 274:10 country 444:13 course 30:7,9,17 31:3,3,17 33:15,18 34:1 74:20 101:24 165:24 166:1 191:1 198:5 268:19 339:7 344:2 355:1 403:16 502:6 511:3 courses 165:19,21 166:2,6 186:1 court 1:1 13:15 71:16 337:24 580:20 courteous 235:9 cover 58:19 211:4,24 411:4 Cramer 11:16 502:23 562:16 563:2,8,16 creates 331:1 creation 109:17 credentials 251:14 credible 563:19 criteria 158:20 187:13 201:3,16 309:8 crocidolite 179:23 181:7 cross 420:7,18,19 421:2 421:4,6,7 crosses	420:20 Crowley 5:22 35:9 39:8,19 40:11,22 42:12 47:15,20 90:6 248:5,11 272:22 280:16 422:5,13 488:2 525:1 526:12 527:3 528:9 Crowley's 44:1 48:5 248:11 423:22 487:20 488:23 525:10,15 527:12,14,16 528:7,18 529:13 530:4 CRP 359:7 crystal 182:3 466:11 crystalline 180:2 CSEM 8:16 Ctisi@levinlaw.c... 2:11 cubic 459:8,24 460:16 culmination 150:14 culture 183:19 297:11 368:7 464:15 560:16,19 561:1,4 561:11,22 575:5 577:6 cultures 138:8 cumulative 440:6 current 14:10 22:17 168:18 187:24 188:13 348:16 388:2 392:22 443:22 currently	22:21 31:12 278:13 443:6 476:9 496:22,22 498:1 498:13 540:20 curriculum 7:22 380:8 cursor 191:16 192:2 193:20 customarily 445:17,24 cut 137:4 195:16 318:3 492:18 cutoff 242:4 CV 63:23,24 161:6,10 161:17 162:2,3,6 162:21 163:13,24 168:8,18,23 169:5 169:9,11,16,21 175:7,17 223:23 303:23 342:16 380:2,13 536:7 537:4,6,17 553:24 Cyto 235:21 cytokines 296:14 298:18,21 301:11 308:17 356:21 359:8 475:23 476:1 cytotoxic 234:20,22 425:9 549:21 550:19 551:3 cytotoxicity 235:1,14,18,20 553:1 <hr/> D <hr/> D 5:2 D.C 4:4 damage
---	--	--	---	---

103:22 120:21 354:13,20 470:1 549:22 550:20 data 6:12 51:20,23 52:4 52:19 53:3,18 109:20,21 111:8 116:16 140:23 141:24 156:9,10 186:20 207:10 216:8 246:22 247:3,11 294:24 366:5 376:12 418:20 450:9 473:16 498:7 515:21 537:19 549:20 550:17,24 551:8,24 559:24 576:2,4 date 1:15 18:15 40:22 407:16 453:20 500:21 523:4 525:9 580:9 582:16 dated 37:7 40:19,20 48:12 64:15 69:19 70:1 83:17 85:23 86:2 93:11 388:2 406:7 407:14 521:18 522:12 579:15 David 437:23 day 384:5 474:19 489:24 497:10 582:20 days 392:8 395:1 580:16 De 197:10 502:21 deal 198:11 dealing 167:18	debates 255:2 December 17:7 36:15 48:19 55:15,17,19 247:8 503:17 522:5 577:19 decide 140:8 338:16 483:24 decided 21:5 137:4 decision 72:12 184:11 declaration 490:18 decreased 351:5 352:5 360:22 367:16,22 deemed 580:19 deep 468:1,20 defendant 3:10,19 4:6,10 174:8,9 defendant's 339:11 defendants 14:5 defense 364:20 define 175:21 236:7 256:20 270:11 292:16 373:4 569:15 defined 82:13 151:9 defines 66:24 108:13 definite 194:19 definitely 74:19 98:10 506:22 definition 77:19,20 79:4,11	79:16,22 80:2,6 82:5 89:2 99:20 112:10,12 143:19 159:23 160:6,8,9 160:16 200:6 234:24 235:5,17 235:18 definitions 81:8 degree 177:16 186:24 274:20 363:21 364:14 421:3,5 487:1 degrees 470:14 dehydrogenase 183:18 309:15 delete 314:12 delivered 387:16 demolition 459:13 demonstrate 291:23 473:11 dendritic 311:1 department 22:15 120:9 252:12 535:20 depend 105:14 239:8 274:21 399:18 dependent 480:21 481:9 483:21 484:17 depending 16:5 179:9 182:4 242:24 266:2 289:22 370:18 402:3 467:23 depends 15:19 156:19 178:21 181:3,22 181:23,24 182:1 212:21 255:8	257:19 260:1 262:24 263:3 269:21 307:11,12 321:8 322:6 323:22 324:15 369:22 370:1 373:12 439:21,23 450:1,3 deponent 13:11 582:2 deponents 63:12 deposed 173:7,18 174:15,22 424:12 525:1,17 526:18 527:1 deposees 276:20 deposing 580:16 deposited 518:4 deposition 1:13 6:6 12:2 13:7 16:7,8 17:17,18 18:2 27:23 28:7 32:8 36:7 44:20 50:10,11,17 63:16 64:7,9,11,19 70:23 125:18 168:24 172:17 235:5 290:4 298:14 318:15,17 339:8,15 389:24 390:2,7,12,23 410:3,12,14,19,21 411:15,19,23 412:6,7 435:15 452:16 479:24 480:4 482:9,12 483:1 512:1,3,20 524:19 525:4,7,11 525:16 526:22 527:4,8,13 532:5 548:21 549:3,6,14 578:10,13 579:6,8 579:9 580:3,13,17	580:19 deposition/exhibits 64:18 depositions 10:15 64:13,14 202:11 203:4 204:1 390:13,18 391:5 525:16,20 526:9,9 deposits 408:13,21 461:19 deps@golkow.com 1:21 depth 22:20 417:19 dermal 333:13 dermally 160:13 dermatitis 121:8 describe 132:17 136:20 147:3 363:17 369:18 409:13 described 37:2 describes 27:8 252:3 253:2 381:22 describing 274:4 description 5:14 6:5 7:5 8:5 9:5 10:5 11:5 27:5,7 136:20 design 214:6 252:22 375:11,15 399:13 518:3 designated 18:5 175:1 178:14 245:23 548:7,13 designating 416:6,7 designation 246:16 548:6
--	--	---	--	--

designations 246:18	177:18 362:9	30:24 86:18 285:21	discussed 24:6 30:6,13 34:17	365:4
designing 518:19	diagnoses 514:10	difficult 182:23 183:12	254:19 280:4	disposed 468:6
despite 316:9	diagnosing 178:4	334:15 358:20	453:1 492:11	dispute 484:4
detail 56:19 103:17 170:4	diapering 286:21	408:14 507:16	507:4 527:5 534:5	dissolved 576:1
170:5 409:18	didactic 31:6	difficulty 191:3	534:12	distance 300:13
452:24 552:17	diesel 185:10 303:22	dimensions 182:20 268:17	discusses 313:6 520:21	distant 300:16 312:12
details 21:18	304:12,15 324:9	dioxide 304:7 305:15	discussing 29:12 30:12 254:21	314:9,10,14
detect 252:19,21	dietary 124:11 461:4	307:13	379:24 444:15	distinct 108:15
detected 248:8 455:9 456:13	difference 16:4 42:19 58:23	direct 236:18 300:3	532:19 533:7	DISTRICT 1:1,2
456:21 459:5	178:15,24 192:4	370:22 431:3	535:13,24 536:4	DMSO 576:1
determine 136:13 202:2	238:23 309:22	446:2 472:2	discussion 23:16 25:17 31:4,5	DNA 236:18 365:14
295:20 428:16	388:8	496:10 498:23	31:19,22 32:3,13	420:8
434:12 472:4	differences 180:8,10,19 182:6	499:5 508:3	32:17 33:8 124:20	docs 168:1
determined 309:9	191:22 241:3	579:21	153:10 166:6,14	doctor 32:22 72:17 84:16
determines 262:7	312:18 324:6	directed 508:1,3 574:2	280:8 319:17	85:14 90:1 93:8
determining 223:19 224:11	388:1 520:16	direction 12:5 22:7 179:21	399:23 463:17	94:2 97:5 101:23
385:3	different 55:2 65:4 72:17	244:5	464:1 502:12	106:24 107:14
develop 121:6 348:19 518:5	76:2 79:24 87:6	directions 182:21	506:16 508:13	108:20 122:9
developed 163:17 260:20	90:3 103:6 107:22	directly 227:16 236:22	529:6 532:8	126:14 129:15
518:21	110:17 115:24	376:20	562:19	142:9 149:3 152:6
developing 148:8 259:15 360:3	120:15 135:7,8,10	director 512:12 514:1	discussions 23:4,23 25:8 32:12	161:5,23 171:24
development 116:20,23 329:21	150:21 155:13	548:23 553:17	23:4,23 25:8 32:12	177:2,3 196:8
365:15 470:21	175:24 176:3	disagree 82:8 571:4	58:9 497:12	204:16 206:14
472:5 486:21	180:15,15 182:20	disaster 260:11 460:20	disease 31:9 149:17 150:9	211:15 216:13
504:11,16 505:18	185:1 192:3,22	disciplines 157:8	150:12 151:2,5	217:5 218:12
511:10	194:3 200:19	disclosure 229:2	172:23 177:19	219:2 221:17,22
developmental 30:11	236:15 237:14	discuss 21:2 22:16 131:13	191:10 200:12	222:14 223:18
diagnose 352:18,24 353:8,21	243:24 261:21,22	266:18 281:23	223:21 224:13	224:24 226:4
360:2	263:9,9,10 305:10	347:7 417:12	253:19 254:1	236:5,9 237:21
diagnosed	308:22 324:2,3	418:10 425:21	331:16,18 348:1	250:24 258:23
	328:2,2 330:23	503:23 504:8,13	348:10 349:11,23	260:22 261:23
	357:4 372:21,22	505:15,22 534:16	513:2	267:14 274:13
	381:17 408:3		disease' 512:24	277:24 282:2
	425:2 427:1		diseases 170:10 330:23	284:9 287:10,16
	466:11 470:13		349:21	288:9 294:14
	513:5 514:4 526:7		dismiss 137:4	316:19 329:9
	528:3		dismissed 467:21	
	differently		dismutase	

334:21 335:13,17 336:6 356:3,6 373:16 384:9 387:14 405:17 464:9 492:18 496:10 498:18 500:8,15 507:9 523:8 532:2,4 537:9 544:24 557:12 561:20 569:23 571:18 577:12 578:7 doctors 172:6 355:21,23 356:12 document 1:8 16:20 35:15 36:2,21 40:4 43:3 43:12,17 50:3,4 52:19 53:7 55:8 57:7,12,22 59:24 60:2,3,7 61:15,17 61:23 62:1,20 70:24 76:6 78:16 83:21 88:10 92:21 98:22 99:2,4,12 102:17 106:9 115:13 117:24 119:18 121:14 144:18 175:10 188:11,24 205:18 205:19 206:2,24 207:1,17 210:16 210:19,22 211:4 211:11,13,24 212:20 213:7 215:7,7,9 243:1 271:8 273:14 275:19 384:15,24 385:8 393:6 397:21 398:20 405:13 419:4 430:5 450:12 453:22 454:9,13 454:15 455:8 457:7 469:7 471:16 481:14	540:6 541:19,22 548:11 549:9 558:7 562:21 567:3 documented 507:5 documents 6:20 10:13 12:8 24:17 51:16,17 54:20 63:13,16,17 63:22 65:12,21 66:7,13,19 72:14 84:24 85:15 93:12 93:13 125:7 141:21 142:3,10 142:12,14,18,23 143:1,3,5,7,11,18 143:20,24 144:1,3 144:4,11,23 145:14,19,22,23 146:1,17 158:3 191:2 202:12,15 202:15,16 203:4 203:11,20 204:5,9 206:15 215:13,23 216:18 242:19 243:13 247:5,6 269:9 270:15 272:12,16 273:11 273:13,20 274:3,4 275:2,7,10,14,18 276:4,8,15,18 277:1 280:17 286:19 287:3 292:6,19,19 388:21,23 395:5 395:12 418:18 428:4 445:22 450:20 480:6 510:22 536:18,19 559:3 doing 22:8 80:12 121:2 133:2,5,21 134:17 135:7 176:11 238:16 292:7 384:22 463:14	492:3 580:8 dose 183:6 262:7,12,14 263:5,7,11,14 265:6,12 295:21 314:15 343:6,9 368:12,18,19 369:2,17 373:6 480:21 481:9,12 483:21 484:17 511:1 dose-response 264:5 342:21,24 343:9,13,16 375:18 dose-responses 343:1 doses 265:21 295:13 370:4 376:13 377:1,11 double-chain 110:18 doubt 258:2 Dow 172:22 173:24 174:6,7,9,12 Dr 5:16 6:6 7:23 13:11 14:2,9 16:24 18:1 35:2,19 36:15 40:22 44:1 47:15 47:20 48:5,11 49:13,14 50:8,22 51:7 54:1 58:4,16 58:17 59:24 61:2 63:21,23 64:7,9 65:2 73:24 74:1 75:10 84:4,19 85:11 87:5,9,12 87:16 88:1 90:6 90:13,15,24 95:16 116:3 117:2 125:14 126:8 197:10,12,15,16 197:17,21 251:8,9	258:20 285:17 319:23 339:6,18 339:21 342:2,4 374:2,4,13,22 375:2 376:13 377:18,23 378:2,5 379:7 381:3,21 382:8 383:23 411:9,13,23 412:6 415:12 422:13 423:22 428:7 430:1 437:5,5,22 437:23 442:10 444:11 452:6,20 460:23 484:12 486:4 487:20 488:2,23 493:4,11 493:14,19 494:12 494:19,21 495:5 497:3 513:16,19 513:22 514:15,24 520:22 521:16,23 523:23 525:1,10 525:15,22 526:12 526:14,17 527:3 527:12,14,16 528:7,9,18 529:13 530:4,9,17 537:21 538:11,12 539:6 539:16 544:6 549:15 552:15,22 553:5,16 554:3 555:4,16 573:19 575:18 576:19 draft 49:23 50:3 57:14 57:16 59:6,21,22 60:22 214:17,21 388:7 391:24 500:11,17 541:24 542:17 544:11 547:14 572:3 drafted 393:12 drafts 50:1 drain	299:5 drastically 215:14 drinking 461:9,13,17 drive 4:8 6:7 51:1 53:12 53:17,19,22,22 Dropbox 37:20,21 dropped 208:17 Drug 453:2 drums 120:22 dry 340:1 dubious 112:21 due 299:9,12 509:8 DUFFY 3:16 duly 13:20 579:5 duplicates 135:9 duration 39:13 262:13 343:2 373:13 440:4 564:21 565:4,17 572:24 dust 185:8,9 224:4 dusted 278:24 279:10 dusts 185:15 254:9 457:11 duties 445:10,16 Dydek 525:22 Dydek's 35:2 49:13 dysplasia
--	--	---	--	--

116:23	438:24 470:8	123:18	445:8	entities
E	485:12 517:4,22	elevate	employs	3:10
E	519:21 557:5	365:5	542:2	entitled
5:2,11 6:2 7:2 8:2	567:10 568:17	elevated	endogenously	421:24 457:10
9:2 10:2 11:2	574:4,13,22 577:5	231:7 360:21 362:7	365:20	entity
359:12 581:1	577:23	362:21 478:21	endometrial	152:19 153:3 154:7
E-M-M-E-L	effects	559:7	499:15 541:7	170:9
19:21	7:17 120:12,13	Elevation	endometrioid	entry
E-press	134:2 140:24	477:6	191:19	18:17 27:11
576:12	141:1 176:23	elevations	endometriosis	environment
e.g	264:15 278:23	479:7	349:22 472:7	124:10 259:18
459:12	279:9 283:12	elicit	endpoints	289:22 290:12
ear	294:9,16 301:18	373:7 499:17 541:8	235:23	environmental
120:22	368:13 369:12,18	ELLIS	engagement	7:13 9:7 15:21
earlier	370:10 372:8	4:7	176:12	22:16 109:11
139:3 159:14	378:16 379:12	else's	Engineering	110:24 114:10
167:12 175:6	406:18 407:8	527:4	149:23	205:16 230:1
370:17 384:9,24	438:10,18 440:6	embrace	engines	443:17 491:3
398:11,18 435:14	490:22 491:17	355:21	261:5	492:10
532:5 575:9	510:24 511:2	emerged	engulf	Environmental.c...
early	514:7,7,9,20	448:22	237:18 327:19	114:7
18:11 31:10 55:19	515:23 567:9	emergence	328:20 329:1	EnvironmentalC...
146:19 193:21	572:23 573:2	388:10	engulfable	106:17 107:17,24
250:12 257:22	effort	emerging	328:22,23	108:8,22 109:4,18
299:2 346:21	26:14	56:17 255:1	engulfing	110:1 111:15,19
347:1 392:7	egg	Emmel	329:18	113:19 114:12,13
489:24 536:7	95:3	2:3 18:23 19:14	ensure	environmentally
earn	Egli	20:21 21:14 23:1	134:18	176:17
15:1	502:21	23:5,12,16,23	enter	environments
earning	either	24:6,10 25:1	566:1	119:10 289:13
15:9	55:19 65:6 82:7	28:10 31:2 32:15	entertained	enzymes
EASTERN	88:1 123:20	33:9,13,19 57:23	401:23	237:2 381:7
1:2	140:22 181:6	57:24 58:7 61:13	entire	EPA
Edelstam	182:17 233:8	141:6,13,17	99:12 104:16 123:6	77:23 108:13,18
502:21	279:22 286:16	152:16 184:14	266:21 270:9,12	180:9 205:13,17
editor	320:1,12 321:3,22	196:12 531:7	270:13 271:9,10	213:5 214:23
229:22,23 531:20	322:18,24 323:11	Emmel's	272:4,9 278:10	220:4 261:16
531:21 534:21	339:24 369:15	20:4	422:3	262:2
editorial	408:13 425:22	Emory	entirety	epidemiologic
229:24 531:21	448:21 455:10	127:18	38:11 40:13,16	415:7 558:2
effect	541:13,18	employ	43:22 59:7,13	epidemiological
11:19 119:12	elected	445:9	61:14,16 71:20	116:17 122:20
207:11 262:18	444:1,5,9	employed	118:5 140:13	124:8 205:21
264:4,14 279:15	electronic	443:9,13	209:17,21,23	232:16 557:21
305:13 313:9	47:6 166:14 170:1	employer	298:6 410:13	559:23 564:15
416:20 417:4	170:7	14:10	411:22,24 549:2,8	epidemiologist
	electroplating	employing	550:9	73:14 131:12

256:21 294:21 399:16 415:10 438:6 564:14 epidemiology 399:19 epidermal 334:6 epigenetic 123:3,9 epigenome 236:19 294:2 epithelial 297:12 354:9,10 375:23 376:3,6,15 499:20 520:9,13 541:11 epithelial-associa... 354:6 epithelioid 191:20 Epstein 414:13 430:1 539:16 Epstein's 197:17,21 497:3 equilibrium 326:18 errata 580:6,9,12,15 582:12 error 92:19 407:23 420:11,15,16 escalator 467:22 468:7 especially 295:7 406:20 407:9 ESQ 2:3,3,9,14,18 3:3,7 3:12,17 4:3,8 essentially 150:24 435:6 establish 238:10 239:15 241:17 257:1 established 228:13 264:5	282:17 293:7 543:3,13,15 547:4 Establishing 240:1 et 119:12,13 120:22 120:22 124:3,3 140:24 155:17 365:4 406:3,16 407:19,21 452:15 472:3 506:8 541:7 572:10 ethanol 331:14 ethyl 425:11 etiologies 165:4 194:1,4,23 etiology 193:16 194:9,12 354:4,5 543:1,11 543:14 eugenol 47:4 166:12 European 451:24 evaluate 281:5 427:8,15 evaluated 156:13 231:3 286:7 464:22 465:1 553:21 evaluating 231:5 342:22 343:5 343:11 375:13 evaluation 406:24 407:13 evaluations 358:14 events 22:17 477:7 478:6 544:2 545:9 546:9 everyday 363:18 474:15,23 evidence 57:6 116:18 124:9 156:12 198:13	200:23 201:19 211:12 216:24 226:19 249:4,7 277:24 338:13 345:18 351:3 352:1 354:3 397:13 400:16 403:16 416:11 430:17 435:7 492:21 493:22 494:3 501:11 565:15 evolve 123:8 ex 137:8 138:8 145:7 295:2 exact 55:20 90:16 91:1,1 122:16,24 149:12 236:3 485:2 525:9 exactly 128:12 149:19 159:24 183:4 530:8 EXAMINATION 13:23 442:7 464:6 486:1 523:20 571:15 576:16 examine 134:6 468:24 examined 13:21 example 15:15 77:21 88:9 99:7 158:14 233:15 234:3 238:24 239:6 277:4 301:7 307:13 316:15 349:4 364:4 444:3 459:20 examples 80:16 81:4,10 125:13 331:5 346:17 exceed	514:24 Excerpt 9:21 excessive 158:18 exclude 156:8 excuse 101:22 103:12 106:23,24,24 124:16 169:8 176:15 188:18,19 195:10 197:20 208:17 210:4,20 218:24 225:14 233:2 250:6 336:4 379:18 404:5 453:17 476:21 478:18 492:17 506:7 509:15 510:20 511:9 557:12 Excused 578:12 exemplify 283:10 exercise 364:7 exhaust 185:10 303:22 324:9 exhibit 6:19 16:18,21 17:1 26:24 27:2,18 35:11,12,16,19 36:1,5,20,22 37:22 39:17 40:5 40:9 42:3 43:13 43:16,19,20 45:3 45:9 46:16 48:13 50:5,9 51:18,22 53:8,11,14,24 55:4,9 57:1,8,11 60:8,11,17,21 62:21 63:1,1,3,24 64:13 65:8,11,13 65:18,19,20,24	66:15,17 75:14,16 75:17 78:17,20 79:13 83:16,22 84:16 88:11,15 89:7 92:22 93:2,4 93:6,8,15 101:21 102:13,18,22 103:14 106:10,14 107:16 115:14,18 115:21,21 117:21 118:1,9 119:19,23 121:15,19,19 125:21 126:5,15 141:18 142:16 168:11,15,17 175:8,9,11 188:10 199:16 205:11 207:20 208:1,7,8 210:6 213:10 250:4 287:5,10 386:8,16 387:3 392:1 393:3,7,11 393:20 398:16,21 403:21 405:11,14 406:15 418:22 419:5 430:3,6 444:22 454:8,10 457:6,8 469:8,12 471:17,21 480:1 481:15,18 482:16 493:23 494:4 495:13 496:4,7 497:4,16 498:18 498:19 500:12 507:19 515:9,12 522:18,20,22 526:2 539:15 542:18 549:10,14 549:16 562:17,22 563:1 567:2,4 572:6 573:15,16 575:12,13 exhibits 36:8 64:14 125:8 125:12,19,22 412:5,11 413:1,8 413:21 418:20
--	---	--	---	---

480:1,7	175:2 178:6,9,14	314:18 376:15	371:11,16 375:21	370:23 382:19
exist	184:1,5,9,15,18	461:8,12 478:14	475:2,4 480:19	420:17 425:6
180:1 182:17,19	185:3,13,17 186:7	499:19 516:22	481:7 517:14	453:1 475:1,3
267:11 268:5	186:11,19 187:2,7	541:10 556:15	expressions	483:3 488:15
389:19	187:12,14,17	558:4,12,21	474:13	498:8 501:2 555:8
exists	196:16 197:5	559:13	extensive	factor
278:12 431:2	198:3 199:14	exposure	215:21 295:1,1	30:14,16 32:10
432:22 498:22	204:2,16 225:8,10	11:18 120:19	552:24	81:24 110:9 217:3
499:4	226:15,17,21,23	123:15 124:2	extensively	298:19 343:17
expanded	227:4,9 228:22	149:16 151:2,5	293:24 303:13	356:22,23 475:8
245:15	249:7 252:7,10,11	176:11 207:9	333:3	factors
expansive	252:15 315:19	223:21 231:8	extent	30:12 31:10 104:13
198:1	374:21 375:2	253:18 262:7,13	31:21 32:3 39:14	104:15,21 165:14
expect	394:7 424:1,16	281:17 282:10	47:9 154:17	182:5 202:1 285:3
497:10	447:3,13 448:6,16	283:2,20 284:12	353:15 355:24	305:21 310:5,23
expenses	488:22 490:1,6,14	285:13,23 286:6,8	extract	310:24 330:11
15:4	490:19,21 491:2	286:16 292:21	408:20	360:6 361:12
experience	491:16 526:11,24	293:14 311:17	extraction	362:21 375:13
169:6,12,17 253:9	528:8 532:16	313:7 332:5 333:8	408:13	475:22 480:19
295:22 372:15	540:2 550:2	333:12 335:10,20	extramural	481:8
422:12 445:6	expertise	336:9 343:2	443:21	factory
492:5 531:23	177:22 178:1,3	356:15 366:9	extremely	459:13
experiment	251:5 530:21	368:14,19,20	76:22 201:20	facts
427:7,15	531:5,7 532:12	369:3,8,10 370:1	269:23 293:6	111:21
experimental	554:9	370:21,23 394:22	334:15 461:24	faculty
122:20 148:4	experts	396:9,12 397:2,10	475:21 510:23	29:15,20,23
375:12,14 518:10	11:13 34:19 49:24	397:15 402:8,20	560:3	fail
575:1	111:22 171:22	415:8,19,20,21	eye	580:18
experiments	390:13 447:9	416:9,18 425:21	120:20	fair
148:1	525:17 526:10	425:22 457:21		318:17 503:1 509:1
expert	experts'	458:1,3,16 459:12	F	509:2 515:23
5:17 15:1 16:12,13	34:23 139:2	461:4 462:16	F	573:6
18:6,9 20:4,16	expires	469:23 474:23	4:4 477:8	fall
21:5,12 23:8,18	582:21	476:20 477:1	face	143:18 429:2
24:2,18 25:21	explain	480:18 481:6	286:21	fallopian
36:6,10,12,13	29:9 87:8 127:22	557:18,24 559:2,9	face-to-face	8:6 371:14 499:16
39:18 46:10,11,14	151:14,17 167:1	exposures	28:12,13	familiar
47:1,11 54:12	234:21 350:12	124:11 280:4 296:2	facilities	21:24 22:11,13
62:6 63:24 66:20	explaining	372:13,14 373:18	562:8	28:17 170:3 254:8
66:23 70:1 75:11	120:16	373:20 492:11	fact	261:18 360:10
83:19,19 84:10	explains	556:19	95:8 109:9 111:7	384:11 532:17,18
90:6 105:24	513:11	expression	118:22 119:17	535:19 553:18
137:18 138:3,14	explanation	11:10 104:14	128:8 130:12	far
138:24 139:5	127:12 128:17	236:13,20 237:2	131:8 136:13	114:22 133:16
140:8 148:17	130:7 350:15	291:2 294:3	156:8 158:21	212:9 272:15
168:11,18 170:23	exposed	296:10 297:8	212:4 256:11	282:13 300:13
171:5 174:2,18	173:1 233:7 263:6	305:17 310:4	304:11 314:11,12	fashion

136:5	Ferguson	244:6,12,16 245:2	539:13,15 563:18	134:7 152:6,12
fatty	3:12 5:6 441:20	245:16 246:12	567:22,22,24	213:9 230:4,15,17
301:21	442:9,14 446:13	269:10 273:2	Findeis	301:12 325:9,20
favor	448:2 450:5 452:1	457:11 491:11	2:18 28:23,23,24	326:11 357:3
574:22 577:5,23	454:1,12 457:12	511:14 519:7,13	29:1 207:22	361:8 404:14
FDA	458:6 460:24	548:15,15,18	finding	408:8 443:1 445:3
398:5 414:1,13	462:7 463:4	field	104:18 109:20	446:17 458:7
429:24 431:2,9,17	ferreted	148:5 160:11	201:12 248:2	459:19 461:6
432:14,19 433:3	434:5	225:10 409:22	346:8,14 423:23	462:15 470:16
433:20 434:13,24	fetus	Fifth	431:8 434:19	499:2 500:15,22
436:4 453:7 454:4	176:24	64:17	464:19 471:9	508:15 520:20
455:10 495:11	fiber	figure	473:2,15 508:6	524:2,24 549:16
496:3,19 497:2	182:2 244:10 248:5	463:13 484:22	568:7	564:1,5 572:11
498:6 499:22	253:19 255:8,13	485:3,6,7	findings	fish
512:10,10	255:19 256:8,14	filed	345:15 357:23	391:17,20 536:10
FDA's	256:24 257:7	173:6	361:5 474:1 568:1	Fisher
414:14,22 431:16	265:10 296:8	filing	finds	575:22,22
432:20 433:24	327:19 328:18,20	229:13	496:19	fit
434:8 437:1,10,14	328:21 459:5	fill	fine	509:12
437:17 496:7,16	461:18 465:18,19	229:5 399:19	429:13	five
497:22 539:16,19	512:21	filters	finer	107:22 179:11,12
540:10	fibers	186:18	429:19	416:8 468:2
feasibility	179:17 244:6	final	fingertips	flash
152:1 377:4	245:11,19,22	215:4,6 387:15	287:8	53:12,17,19,22,22
February	246:8,19 247:9	388:3 397:4,6,8	finish	flavorants
18:19 387:16 388:5	248:9 254:10	398:4 500:19	101:23 122:1 141:8	47:8 170:1,5
388:12,16,19	255:4 270:18	522:3 547:19	195:15 211:19	flavors
389:1,12,17	273:2,5 275:21	finalized	225:24 226:11	170:6
437:11	296:6 451:17	250:20 415:2	267:24 317:3	flipping
Fecchi	459:8,23 460:4,16	financial	318:2 319:3	85:16
132:7	462:1 466:8 491:5	229:2 446:3	339:14 441:22	Florida
federal	491:9	find	463:20 538:6	2:10
482:8	Fibres	133:24 134:10,11	finished	fluorescence
feel	9:20	145:7 230:6,22	86:23 107:2,4	292:11
75:24 85:18 103:13	fibriles	231:11,13 232:12	124:14 225:19,23	FLW
121:11 335:11	182:19	232:21 233:10,12	267:13,14,19	1:6
537:9	fibrils	236:3 283:23	455:11 463:3	focus
fees	179:18 244:9	284:2,10,18 285:2	finishing	167:18,23 168:1,4
14:24 15:8	fibrosis	285:13,22 286:4	318:9	168:6 295:8
felt	329:22 330:3,10,22	301:9 346:6	first	514:17
20:9 22:8 97:19	331:1,10,14,15,20	357:16,18 386:10	13:20 18:8,14,16	focused
134:8	331:23 332:1	387:3 394:18,20	20:5,17,22 21:16	137:6 360:20
female	343:22 344:12	397:20 399:8	23:1,14,17,20,24	375:10 383:10
31:7 153:15 170:11	fibrous	433:10 435:18,20	24:7,10 25:5	487:4 520:9
518:5	108:15 110:16	437:2,7 455:14	33:24 39:16 40:23	focusing
female's	189:14 237:22	465:5,6 469:17	118:18 128:13,23	23:13 48:21
518:20	243:17,21 244:1,4	485:2 495:5	129:5,16,21 130:2	folder

143:4	98:6,20 99:23	268:10 269:7	473:6 474:17	466:11
folders	100:13,24 101:9	270:5 271:1,23	476:7 477:16	formulated
63:18	103:12 105:12	274:8 281:8 282:6	478:9 479:2,10	26:18
follicles	106:2 108:2,11	283:6 284:14	486:11 487:8	formulations
568:3,9	109:1,14 110:4	285:16 286:11	488:11,20 489:3	189:4,10
follow	112:15 113:23	287:21 289:17	489:17 490:9	forth
22:3,4 227:18	114:15 115:5	291:7 293:1,21	491:1,13,20 493:9	85:17 463:10
516:12 542:16	116:7 120:4 122:6	294:19 296:1,20	494:4,9,11 498:4	forward
follow-up	134:4,21 135:18	299:16 300:23	500:3 501:17	56:18 339:14
486:5 523:24	137:22 138:18	304:20 305:6	503:8 504:3,18	foster
followed	139:8,24 140:11	306:7,16 307:8	505:9 506:4,21	119:10
133:10 148:23	143:14 144:15	310:16 311:20	510:12 511:18	found
150:18 490:15	145:3,16 146:7	312:22 313:11	514:13 516:1	54:23 58:5 120:23
following	147:1,10,15	314:21 321:7,9,11	517:7 519:9	136:9 151:15
62:14 346:15	148:20 152:10	322:2,6 323:4,16	524:15 526:13	170:7 197:19
379:12 427:3	153:7 154:11	324:13 329:8,13	527:21 529:16	198:21 202:14
477:4 542:19	155:22 157:24	330:5 334:13	531:10,18 533:16	203:7 224:7
543:23	159:20 163:1	336:1 340:6,22	534:19 538:19	246:23 247:12
follows	166:22 168:13	341:14 342:14	540:4 541:16	269:12 283:19
13:21	170:13 172:4	346:4 348:13,21	545:15 547:9	284:15 287:6
food	173:16 175:18	351:11 352:12	550:4,15 552:13	291:9 299:3 352:6
289:7,9 453:2	178:18 179:4	353:11 355:15	553:14 557:8	361:23 362:3
footnote	180:2,13 181:13	360:17 362:15,24	560:10 562:13	385:23 387:13
521:14,14,17	181:20 184:3	363:20 365:1,16	564:12 565:2,12	394:14 399:12
foregoing	185:6 187:5 188:4	367:9 368:23	566:21 567:11,19	419:18 428:4
579:18 582:6	188:19 189:7,22	369:20 370:14	568:17 569:22	433:20 449:9,15
foreign	190:24 191:13	372:18 376:18	573:8 574:5,14	497:19 498:7
234:12 325:9,10,23	192:12 193:4	377:21 378:11,23	576:6 582:10	564:21
327:12,17 328:16	195:2 198:6	379:15 382:10	formal	four
499:17 509:8	200:15 206:20	387:22 388:15	490:18	115:24 206:8
541:8 567:11	209:3,11 212:12	390:16 392:4,17	formation	396:13 498:9
568:12,17 569:2,5	214:3 218:20	395:10 396:19	566:18	528:4
574:5,14	219:1,10 220:15	399:11 400:9	formed	fourth
forever	224:19 225:4	402:23 403:10	22:23 138:9 139:9	538:10
357:21	227:7 228:1	405:24 408:23	148:15 149:7	fracture
form	231:17 232:24	409:16 412:17	153:17	466:13
25:15 26:6 31:18	233:3,21 234:8	413:10 415:24	former	fragmented
31:18 32:21 46:2	238:12 239:19,24	416:22 417:16	512:12	406:21 407:10
46:18 47:12,24	240:16 242:14	418:15 423:4	forming	fragments
49:18 52:7 53:1	244:9,10,15,22	424:3,19 426:9	276:14 329:17	466:13
56:9 67:3 68:8,19	245:2,6,16,22	428:22 434:17	forms	fragrance
70:4,21 71:11,23	246:10,19 248:24	438:13 439:19	110:17 178:16	42:1 91:2 161:24
78:9 82:19 83:3	249:16 255:20,24	440:12 446:6	179:1 180:1,11	163:11 268:8
85:13 87:14 89:20	257:5 258:14	447:17 449:24	181:11,18 182:17	270:23 271:21
90:18 91:5,21	259:8 260:7	451:22 453:18	269:11 322:13	272:23 313:15,17
92:7 94:1,15	262:10,23 263:18	458:5 460:7 462:4	325:2,3 329:6	322:23 487:17,17
96:13,22 97:13	266:13 267:4,8	465:16 466:13	404:8,22 405:19	487:23

fragrances 42:2,7 43:7,23 45:20 46:15,24 47:10 89:3,13 91:11,18 92:3 166:6,11,13 169:18 184:2,6,9 184:16,19 270:19 274:7 313:2,7,13 313:22 322:24 421:24 422:4 423:8 425:13 487:18 488:4 524:4 527:19 529:12,20	23:15 207:10 401:19 413:4,14 430:17 523:8 576:10,14 578:7	497:12 508:17 534:7 543:2,12	getting 57:22 124:18 331:21 399:16 431:7 468:20 516:6 532:15	549:15,18,23
Frank 10:16	G	generally 156:17 344:22 347:12 355:11,18 453:5 489:12	Ghassam 55:7	Glenn's 552:4,15
free 85:18 103:13 335:11 496:23 498:1,14 537:9 540:21	G-H-I-O 477:9	generate 301:16	Ghio 197:6 301:8	glimpse 409:12
frequency 262:12 343:2 373:13 439:24 440:5 472:18	G-I 197:6	generated 17:3 260:12 366:9	give 25:21 32:22 35:13 35:14 80:15 102:3 107:11 108:7 113:6,20 114:9 115:2 165:23 166:2 183:22 188:21 206:22 224:5 263:21 313:3 349:4 354:3 372:23 409:8,12 417:6 452:8 494:24 495:1 502:17,18 504:22 516:9 537:19 570:7	glutathione 381:11
frequently 505:5	Gamble 10:19	generating 300:6	given 31:14 87:8 154:13 165:17,18 166:18 171:10 183:5 195:18 313:17 434:22 450:9 456:17 466:14 575:24 579:6 582:8	go 14:24 15:3,5,6 34:13 51:4 56:21 57:1 61:24 80:15 101:17 102:10 108:16 110:7 124:22 138:22 147:19 160:24 162:6 177:4 179:19 184:22 196:9 218:5 224:11 233:22 234:8 239:5,7 240:16 275:2 282:23 289:23 290:2 299:19 301:23 303:23 305:21 306:17 314:4,9 317:13,18 317:19,22 318:5 318:10,14,23 322:8 331:3 336:19 338:1,5,8 338:16 339:13 371:4 388:11,15 404:6 419:1 429:20 442:21 443:2 446:7,11 450:6,14,24 451:1 452:23 454:7 459:18 463:10,15 463:22 468:4,12 482:13 496:1 500:23 502:24 510:20 519:22 521:5 524:5 528:23 529:2 537:11 555:19,22 570:14 577:16
friends 34:13	gaps 399:20	generation 365:12		goes
front 28:4 58:14 65:16 75:12 89:8 150:2 161:18 571:21 573:14	Garfield 176:10	genes 104:14 236:10,11 236:23 271:14 296:11 474:19 485:9 551:10		
full 14:6 117:22 230:4 230:15,17 302:24 445:3 446:17 452:13 480:24 520:20	gases 185:16	Genesis 431:5,6		
function 309:10 326:14 327:3	gasoline 261:11	genetic 86:13 87:1 94:12 95:17,21 97:8 98:15 100:10 123:2,9 421:20		
funding 443:14,22 446:9	gather 46:4,8 84:12 194:6	geneticist 185:20,22		
further	gathered 117:7 136:4 247:22	genetics 7:8 93:11,17 99:19 185:24 186:1		
	gathering 241:14	genital 152:21 153:5,21 154:9 155:19 401:6 431:12 508:9 548:7 566:1		
	gene 11:10 86:8,15 236:13,21 237:2 291:1 294:3 296:10 297:8 305:17 310:4 371:11,16 375:21 474:13,22 475:1,3 475:12,21 478:11 517:14	genomic 119:10		
	general 113:3 124:10 158:11,13,15,23 158:24 159:3 344:23 393:24 402:15 409:18 458:16 461:8,11 462:17 468:17,18 471:3 489:8,11,13	genotoxic 236:17		
		genotoxicity 237:11		
		geologist 409:1,10 418:17 419:13		
		germ 95:1,3		

147:18 242:20 271:12 521:5 568:3 going 16:18 36:19 38:22 40:2,8 42:12 54:15 60:11 61:6 62:24 74:10,12,16 83:12,15 88:14 93:1 104:15 106:13 115:17 117:21 118:11 119:22 123:13 125:11,17 133:8 133:16 139:21 176:7 182:5 195:20 209:16 211:11 214:19 215:1 216:8,9 221:1 231:21 233:11 237:16 239:2 277:11 285:8,10 299:24 303:23 308:9 309:19 317:17,21 318:8 319:11 334:20 336:18,19 336:20 337:2,16 337:23 338:19 339:1,13 366:16 367:3 383:23 384:3 391:8 398:15 418:17 441:19 442:19,20 453:19 462:22 467:20,24 469:11 475:19,23 482:5 482:21 483:6,6,22 484:4 487:14 500:10 523:13 527:23 528:21 537:3 542:22 549:13 572:5 Golkow 1:20 13:4 GOLOMB 2:13,14 127:3	good 14:2,3 74:13,16 85:20 254:22 436:2 442:13 563:22 Goodman 437:5,22 Google 44:9 54:19 GORDON 3:12 Gosen 452:12 government 212:24,24 grade 191:18,18 192:5,5 409:7 451:16 453:3 455:10 539:20 graduate 30:7,12 43:10 131:24 132:1 443:13 graduated 132:9 Grand 3:3 grant 67:11 133:12,12 443:18 grants 15:23 133:13 granuloma 329:11,16 345:21 granulomas 291:9 328:9,11,13 328:15 329:8,11 343:21 344:8 345:15 granulomatous 329:3 graphics 428:6 Gray 1:15 579:12 great	198:10 319:13 421:7 507:8 greater 38:23 56:19 184:23 239:1 241:5 467:19 571:9 groundbreaking 202:6 group 152:19 153:3 154:7 205:2,6 215:24 216:19 217:10,12 218:2,15 219:15 220:5,11 222:5,5 225:7 245:3,12,17 398:6 417:9 groups 108:16 217:12 218:23 219:7 220:10 grows 244:2,12,18 growth 104:15 356:23 470:3 475:22 guess 140:19 463:13 guidelines 227:20 gynecologic 556:6 Gynecology 563:22 <hr/> H <hr/> H 5:11 6:2 7:2 8:2 9:2 10:2 11:2 habit 244:3,13 511:15 habits 110:16 half 45:17 390:2 hallmark 577:10 HALPERIN	3:7 Hamilton 288:18 347:2 506:8 506:9 hand 495:17 500:10 544:15 572:1 handed 60:12 522:19 545:1 547:18 handful 265:23 handfuls 372:22 handle 364:21 366:8 hanging 261:14 happen 368:8 393:17 461:10 happened 92:18 happening 337:1 happens 329:4 466:17 hard 357:16 HARDY 3:2 harm 385:5 harmful 262:18 Harper 538:11 hazard 404:9,23 405:20 hazardous 405:20 he'll 317:6 head 105:22 188:8,23 286:20 342:4,7,16 372:4 467:2	headed 403:22 heading 52:4 89:2,13 461:7 health 7:17 14:13 15:21 61:10,11,11 63:19 63:20 120:11,13 120:13 205:12,16 207:1 213:2,5,10 214:16,23 219:17 230:1 260:14 283:12 301:18 384:4,10,13,17,19 384:22,22 391:8 391:10,15,18,19 391:24 392:6,13 392:24 395:4 406:18 407:7 443:18 477:18,24 500:11,17 501:4,6 502:12,14 503:4 503:19 512:14 514:2 519:21 543:21,22 547:6 healthcare 392:24,24 hear 66:10 102:6 254:17 heard 24:23 169:23 254:12 530:23 555:17 heavy 268:7 270:22 271:20 274:6 278:6,6,17 280:3 281:4 284:4 292:3 415:21 416:9,14 491:17 517:4 Hegarty 3:3 5:5 14:1,4 16:23 21:7 26:9 26:16 29:5 33:3 35:18 36:24 39:1 40:7 41:16 43:15 46:7,21 47:17
--	---	---	--	--

48:3 49:19 50:7	193:10 195:8,22	323:9 324:7,21	487:7 488:10,19	helped
51:3 52:17 53:10	196:7 201:10	329:19 331:7	489:2,16 490:8,24	501:12
54:2 55:11 56:23	207:12,21 208:2	334:19 335:16	491:12,19 493:8	helpful
57:10 60:10,21	209:6,15 210:7,12	336:2,17,20 337:9	494:10 498:3	85:18 387:4
61:1,5 62:23 67:5	213:6 214:12	337:13,16 338:1	500:2 501:16	Henderson
68:1,11,23 70:8	217:24 218:22	338:15,24 339:20	503:7 504:2,17	288:18 347:2
71:4,18 72:3 74:6	219:6,13 220:17	340:11 341:6,18	505:8 506:3,20	502:19
74:14,22 75:9	220:21,24 221:10	342:20 346:11	510:11 511:17	Henry
78:13,19 82:22	221:19,21 222:2	349:5 351:18	514:12 515:24	4:16 13:2
83:11,24 85:2,8	223:17 224:23	352:16 353:17	517:6 519:8	hepatitis
85:24 87:15 88:13	225:5,15 226:1,3	356:5 361:2,16	523:10,22 524:20	330:19
89:23 90:21 91:8	227:12 228:16	362:19 363:8,23	526:16 527:11,24	hexavalent
91:24 92:13,24	230:11 232:5	365:10 366:4	528:16 529:2,10	120:10,18 293:9
93:5,7,22 94:8	233:14,23 234:18	367:20 369:4	530:2 531:13	321:14,19 421:5
95:15 96:17 97:3	235:10,16 239:13	370:7 371:2	532:1 533:22	421:17
98:1,12 99:16	239:20 240:9,19	373:15 376:2	535:3,22 537:11	Hey
100:6,17 101:4,15	242:9 243:3,14	377:15,24 378:14	537:14 539:1	277:10
102:5,20 103:1	244:23 245:9	378:20 379:5,21	540:8,14 541:23	high
104:4 105:15	246:13 249:5,23	381:16 382:21	543:6,7 544:7,13	191:18 192:5
106:12 107:1,5,13	251:3,10 252:6	383:13,22 384:8	544:21,22 545:18	259:16 262:20
108:5,19 109:6,23	255:21 256:22	386:15,23 387:10	547:12,23 548:12	287:24 402:7,19
111:23 112:22	257:13 258:22	387:12,24 391:3	549:12 550:6	461:24 469:22
114:3,19 115:16	259:21 260:21	392:10,20 393:9	551:5 552:18	495:24
117:13 118:3	262:16 263:13	395:22 396:24	553:20 556:11	high-grade
119:21 121:17	264:18 266:16	398:23 399:21	557:16 559:18	192:9,19
122:3 124:13,24	267:9 268:3,21	401:1 403:4,19	560:4,13 562:15	high-powered
125:10,22 126:13	269:17 270:10	405:16 406:6	562:24 563:10,15	22:15
127:5,7 134:15,24	271:17 272:5	409:4,23 412:22	563:17 564:18	higher
136:7 138:1,23	275:5 277:13,16	413:18 416:4	565:6,18 567:1,6	258:19 284:19
139:14 140:6,14	277:23 280:23	417:1,22 419:14	568:5 570:2,12,16	331:21 349:20
142:14,19 143:16	281:13 282:9	423:20 424:7	571:10 573:7	356:21 361:24,24
144:20 145:10,20	283:18 285:7,20	425:19 426:10	576:18 577:18	362:11 373:6
146:10,14 147:4	286:15 287:13,15	429:4 430:8 435:4	578:4	377:1,11 459:10
147:11,17 148:6	288:7 290:14	436:13,16 439:2,9	held	460:22 462:2
149:1 152:17	291:13 293:12	439:13 440:7,20	1:14 13:8 14:17	highlighted
153:18 154:16	294:13 295:11	441:19 452:7,24	124:21 280:9	93:14 95:22
156:1 158:7 160:2	296:15 297:15	462:23 463:1,15	319:18 464:2	Hill
161:8,20,22 163:9	300:17 302:1	464:8 465:24	486:12 529:7	73:10 201:22 202:1
167:10 168:16	303:11 305:1	469:10 471:19	562:20	Hill's
170:16 172:8	306:1,11 307:2,23	473:13 474:24	Heller	158:20 201:3,16
173:23 175:13,22	311:14 312:16	476:15 477:23	336:12 502:23	202:5
178:19 180:6,18	313:1,20 315:2,9	478:16 479:5,18	507:5	hired
181:16 182:7	316:23 317:4,12	479:23 480:9	Hello	159:5,16 228:11
184:7 185:2,19	317:18,22 318:5	481:17 482:4,10	442:10,11 462:24	447:4,14
187:9 188:12	318:10,14,20,23	482:19,23 483:9	463:1	hiring
189:1,16 190:5	319:4,10,22	483:19 484:9,18	help	228:7
191:7,21 192:16	321:10 322:15	485:15 486:10	186:20 386:10	histologist

193:9	257:21	hypothesis	83:22 88:11 92:22	37:5
histopathology	household	472:11,15	102:18 106:10	immersed
568:11	15:3	hypothesized	115:14 118:1	475:9
historic	houses	505:5 506:24	119:19 121:15	immune
446:19,22	261:1		125:8 175:11	308:8 325:12,20,24
historical	housing	I	393:7 398:21	326:4,7,12,17,21
37:4,5 493:15	181:5	i.e	405:14 430:6	329:16 347:7
history	human	116:21 427:17	454:10 457:8	351:6 356:18
472:6	11:11 207:4 208:14	564:7	469:8 471:17	359:3,11
hold	209:1 279:21,24	IARC	480:7 481:15	immunity
486:7	283:12 286:8	8:21 9:21 10:17,18	549:10 562:22	328:20
holds	294:16 295:2,22	10:20 11:8,9	567:4	immuno
518:22	296:17 297:6,11	44:11 77:23 78:2	identified	326:18
home	297:17,21 298:1	153:11,19 155:15	94:12 103:6 121:21	immunological
7:8 34:14 93:11,17	309:18 351:22,24	156:12 159:2	171:23 174:17	300:7 569:3
94:13 95:17,22	377:12 417:13	180:21 220:3,23	175:1 194:16	immunology
97:8 98:16 99:20	457:20 517:21	223:5 245:3,12,15	309:21 312:17	391:17 392:7 536:9
100:10	519:1,23 542:15	245:20,24 246:6	346:21 544:4	immunosenescen...
homes	570:20 571:3	256:7 320:19	545:11 546:11,15	326:21
459:21	572:12,17	416:2 417:20	547:1	immunosurveilla...
honest	humans	435:5,11 457:1,4	identifies	326:10
71:2,14	156:4,6,7 295:8	458:12,14 460:3	117:23	immunotoxicity
honesty	339:24 372:11	462:14 511:3,4	identify	536:9
81:23	378:19,21 379:11	548:5,6 558:6	134:7 141:4,10	impact
HONIK	490:23 491:18	IARC's	171:24 205:1	110:9 236:18 326:1
2:13	518:3,11 520:15	155:18 246:15	264:21 292:21	357:11
hookah	556:20 557:1,5,19	511:7,14	346:9 347:19	impacting
170:2	humoral	ICP	385:20 534:3	176:16 300:5
hope	326:6	292:12	II-A	impaction
558:23	hundreds	ICT	155:17	467:24
Hopkins	26:14	465:4	II-B	imperative
411:9,13,23 493:23	hung	idea	155:17,24 156:2,11	580:14
Hopkins'	532:15	74:13 85:20 110:6	156:13	implant
65:2 412:6	Hussain	110:8 268:11	III	174:1
host	118:7	314:4	207:3	implants
326:24	hydrogen	identical	Illinois	172:22
Hotel	300:12	85:11 87:11 88:4	4:9	implicate
1:14	hydrophilic	89:13,15 100:11	illnesses	216:10
hour	465:19	100:16 109:9,10	404:10,24 405:4,6	implying
16:3 74:12 132:15	Hydroxyl	524:10	405:22	223:9
132:16 195:20	119:13	identically	imagine	importance
277:11 389:8	hygiene	110:13	517:10	137:13
hours	160:12	identification	Imerys	important
17:16 26:22 28:5	hygienist	16:21 35:16 36:22	3:19 270:16 273:12	201:21 242:1
38:7 337:20	186:22	40:5 43:13 50:5	273:23 274:5	281:22 342:22
481:22,24 482:3,9	hygienists	53:8 55:9 57:8	411:16 442:15	343:6,12,15
house	186:24	60:8 62:21 78:17	Imerys'	426:23 475:21

508:6	202:22 220:2	independent	324:18 377:6	291:21 294:1
impossible	231:6,10 270:17	116:15 118:12	416:19	296:10 298:17
408:15,20	272:17 277:2	131:15 132:23	induces	299:8,9,12,13
improper	305:22,23,23	INDEX	242:5	300:19,20 301:5,9
338:8 365:11	307:16 308:10	12:2	inducing	301:19,20 302:7
improperly	310:24 314:14	indicate	310:14	302:15 303:5,14
459:13	333:13 365:3	207:6 270:16 287:4	induction	304:4,16,18,22
in-depth	381:3 408:2 410:8	304:23 310:3	153:14 192:6	306:4,10,14,20
42:22	415:11 447:6	348:24 368:5	194:20 234:16	307:14,18,22
in-press	491:4,5,5,6	403:6	349:3	308:1,3,5,6,7,7,8
58:21	493:17 501:20	indicated	industrial	308:18,19,23,24
inaccurate	519:18 566:13	47:18 72:19 358:14	186:21,23 415:21	309:9,17,23,24
409:22	568:2	358:19 569:17	416:9 419:16	310:11,14,20,21
incidence	inclusive	indicates	451:13 459:11	311:2,4,6,7 312:3
258:19	272:18	241:4 272:16	industry	312:4,14,18,20,23
incident	income	286:22 368:7	259:14 409:11	312:24 313:19,24
472:21	15:10,11,17	460:19 536:22	infection	314:3,5,9,13,19
incidental	inconsistent	indicating	119:9 325:22,23	315:1,7,16 320:2
404:2,7,21 405:18	473:2	372:9 554:2	349:19 567:12	320:13,17,21,21
include	incorporated	indication	568:18 574:6,15	321:5,24 322:4,19
27:15 51:16 80:16	80:17,22 96:10	360:21 363:6	infections	323:2,13,18,20
97:8 118:6 120:19	incorrect	indications	568:13	324:10,19,22
136:20 249:6	83:5 338:7	418:9	infectious	325:3,6,7,8
303:19 329:21	increase	indicative	325:11	326:23 327:7,11
350:17 410:7	283:3 348:3,6,13	207:11 311:10,12	inferred	327:14,22 328:1,8
468:14 491:9,10	364:7,9,16,21	indicator	236:13 529:21	329:21 330:1
506:8	400:4,19 564:20	309:8 361:14	infiltration	343:20 344:5
included	565:16	367:17	357:19 358:3	345:19,24 346:14
30:14 31:2 39:6	increased	indisputable	inflammagoue	347:14,21 348:18
72:13 96:9 126:12	6:10 103:24 104:1	499:10	219:23	348:23 349:13,24
165:22 168:10	127:12 128:6,9,17	individual	inflamed	350:3,23 351:1
175:16 203:10,18	130:8,12,17,24	61:24 109:19 111:1	355:7	354:13,19,20
203:23 232:11,20	131:8 173:21	111:4 189:24	inflammagoue	355:1,4,12 356:10
350:18,20 477:20	230:6,22 231:11	238:19 255:9,11	369:23	356:13,17,24
487:23 488:16	231:14 232:21	269:13 271:5,6	inflammation	357:5,6,8,14,15
502:11 509:15	233:16 234:5	279:3 280:12	7:19 10:7,9 103:20	358:7,23 359:1,13
527:18 532:3	284:22 331:9	296:22 298:7	116:12,19,22	359:18 360:24
573:5 576:2	352:7 361:24	individually	118:23 190:2	361:14 369:15
includes	362:12 397:15	130:16,23 293:17	216:6,11 217:1,2	371:1,13,17 377:7
27:6 139:1 179:12	401:7 472:17	314:17	217:21,22 218:7	382:14 383:7,11
179:22 435:5	480:18 481:7	indoor	221:8 222:13	401:24 402:4
including	508:10,18 509:10	459:20	223:11,16 240:12	438:19 440:17,17
17:18 30:15 31:10	512:24 558:3,11	induce	240:18,22,24	441:1,7,13 470:9
54:18 73:22,24	558:20 559:1,12	218:9 257:7 307:24	241:5 242:2,5	470:20 471:7
74:1 93:19 104:14	568:2,8 577:7	313:8,24 314:18	256:12 257:8	473:3,12 475:10
149:21 177:19	increasing	315:6 320:2,13	259:19 271:11,12	475:13 476:11,12
185:8 194:14	472:18	321:4,23 322:19	278:15 282:20,22	486:8,14 487:5

490:2 503:24 504:9,9 507:2 509:6,8 519:20 531:6 538:5 567:14 568:1 569:18 inflammatory 90:8 119:8 218:10 233:10 234:13 240:8 266:9 280:13 281:23 283:11 284:5 290:22,24 291:4 293:5 300:8,9 301:22 309:2,5 311:13 327:13 346:23,24 348:9 348:11 349:11,21 349:22 357:10 358:1 359:8,9,23 360:1 361:13 362:6,12,21 363:3 377:7 423:9,18 425:7 477:3,20 478:19 480:20 481:8 488:6 499:18 505:3 528:11 529:23 541:9 553:2 inform 56:6 62:10 394:22 395:8,13 396:22 501:7 547:20 548:2 information 31:15 46:5,9 65:22 66:15 108:9 109:16 138:21 154:13 165:17,19 198:12 199:4 200:21 201:1 203:13 211:5 212:1 213:18 214:7,11 241:14 242:18 261:19 264:3 274:11 275:22,24 288:15	358:10 372:10 374:3,12 394:2,5 394:6 395:16 399:9 412:24 415:2 422:20 431:13 434:22 487:22 532:6 552:15 563:19 informative 496:19 498:7 informed 62:12 391:23 392:13 395:5 396:16 399:6 501:10 Ingersoll 10:21 ingest 460:4 ingested 237:19 ingestion 331:15 458:2,9 462:16 ingredients 9:22 270:14 425:12 inhalable 239:3 inhalation 153:12,13 197:7 224:4,5 258:9 264:13 286:13,17 300:2 309:3 310:1 332:22 344:24 425:23 458:2,9 462:15 464:10,17 inhale 460:3 inhaled 176:22 286:23 302:6,14 303:4 306:3 307:4 320:1 320:12 321:3,22 322:18,24 323:11 323:19 324:9 467:6,15,18 inherited	86:8,15,24 94:17 initial 18:17 21:9 23:7 133:6,6 196:11,24 197:3 198:7 initially 420:14 initiate 256:9 286:24 initiated 111:2,14 307:4 initiation 119:11 476:14 injury 309:13 331:20 333:23 425:9 innate 325:19 326:4 328:20 inquiry 520:9 insertion 556:24 insist 483:23 insoluble 322:10 instability 420:24 421:20 instance 155:15 institute 15:20,22 149:22,22 223:5 259:14 443:17 512:13 553:18 Institutes 392:23 institution 154:1 institutional 519:4 institutions 519:5 instruct 20:24 482:5 INSTRUCTIONS	580:1 instrumentation 251:23 252:9,14 292:5 428:5 instruments 252:23 insulation 181:5 integrity 6:21 78:21 79:2 81:19 intend 17:10 68:24 72:9 72:18,21,24 73:18 266:23 intense 42:24 intensity 39:13 353:15 intent 69:20 70:2,16 96:6 intentional 557:24 intentionally 518:13,24 519:23 interest 18:13 22:2,7 198:11 229:7 326:24 327:1 446:3 interested 397:23 interleukin 356:22 interleukin-1 298:19 interleukins 360:7 intermediates 256:14 intermittent 406:19 407:8 internal 51:17 202:12 203:5 292:19 394:1,5 418:18 428:4 536:18	International 1:14 123:22 555:11 internationally 555:10 internet 109:22 111:9 120:11 276:19 interpret 79:24 80:4 88:5,6,7 186:20 516:12 interpretation 81:12 82:6 97:15 100:2,3 101:12 102:15 106:5 112:2 456:18 interrupt 76:11 350:14 452:19 interruption 384:7 529:1 interstitial 343:22 344:12 intervals 472:20 intramural 443:22 intravaginal 288:21 introduce 384:1 introduced 439:4,15 510:2 invader 355:3 invasiveness 192:7 investigated 312:1,7,9 534:4 investigating 241:9 investigations 122:21 investigator 76:1,22 109:20 111:2,5,13 118:12 443:21 investigator-initi...
---	--	--	--	--

104:24 111:20 116:16 investigators 106:7 117:8 190:16 301:8 408:1 invoice 18:14,16 28:2 389:7 invoiced 389:1 invoices 5:15 16:16,19 17:2 17:13,20 26:24 27:4,6,17 386:4,4 386:11,22 387:6 387:13,14 389:5 involve 123:2 155:1,4 241:9 308:9 328:1 493:7,24 494:5 515:15 involved 164:1 198:22 383:9 486:24 488:3 515:6 519:19 involvement 290:5 486:6,18 involves 325:19 involving 24:24 416:8 487:16 492:21 ion 466:5,7,24 ions 465:3,7 IRBs 520:1 iron 182:1 271:14 324:4 324:5 irreparably 354:13,15 irritation 119:9 120:21 505:2 507:2 issue	22:21 68:4,15 444:13 520:5 issued 503:14 issues 31:11 167:18 170:18,23 175:15 175:20 533:1 issuing 500:17 Italian 451:19,20 italicized 469:20,21 Italy 187:22 item 453:21 Iturralde 197:13 336:11 502:22 <hr/> J J 3:12 J&J 14:5 536:18 559:3 J&J's 187:20 190:9 J.M 2:18 JAMES 4:8 james.mizgala@t... 4:10 January 1:10 13:5 18:19 33:22 36:19 37:8 37:12,14 55:19 57:17,19 168:22 500:23 522:12,14 523:6 579:15 Jay 437:22 Jennifer 2:3 18:23 Jennifer.emmel...	2:6 Jersey 1:2,15 3:18 13:8 jet 261:5 job 292:16 337:22 Johnson 1:4,5 3:10,10 18:3 18:3 37:4,4 179:11,11 201:8,8 247:6,6 269:9,9 272:11,12 273:11 273:12,22,22 274:5,5 277:5,5,9 277:9 280:18,18 280:20,20 286:19 286:19 287:3,3 423:11,11 447:21 447:21 450:9,10 450:12,13 488:4,8 493:20,20 508:3,3 508:20 528:13 575:23,23 Johnson's 45:21 73:1 90:4 187:3 188:1,14 189:19 190:11,17 190:22 242:11 246:24 247:13 248:3,12,16 275:9 275:15 276:9 278:1,7 286:9 287:18,23 288:12 292:2 295:22 410:8,23 418:1,3 418:8,12 428:20 429:11,17 449:8 449:14 488:4,8 492:22 493:7,17 493:24 494:6,22 495:6 508:20 520:24 528:13 536:16,21 538:17 539:5 575:18 Jorge 10:16	journal 67:10 97:6 98:9 114:23 213:11 229:18 563:23,23 journals 77:4 105:5 229:21 229:22 230:2 444:18 533:21 judge 70:19 71:8 285:10 317:5 318:24 319:12 336:21 338:16 339:2,4 judgment 121:13 224:15,17 226:19 228:15 315:19 322:21 385:9 489:12 Judith 1:13 5:4,17 13:12 13:19 14:8 579:8 582:16 Julie 64:9,15,18 389:23 411:10,15,19 412:5 jump 51:1 383:24 June 93:11 jury 70:19 71:9 <hr/> K K 2:3 3:17 Kansas 3:4 Kasprzak 7:21 121:23,24 122:13 123:19 keep 74:9 105:1 254:24 327:20 keeping 337:22 keeps	328:6 Kemble 3:17 Ken 442:14 463:19 KENNETH 3:12 kept 228:11 keratinized 334:6 Keskin 11:19 336:14 502:4 502:5 506:9,10 566:12,16 567:7 569:10 572:10,14 572:23 573:13 576:20 577:4 key 81:24 135:10,11 306:23 308:4,9 309:8,8 325:17 375:13 keyword 462:20 keywords 135:11 196:22,24 kferguson@gord... 3:14 kidney 294:11 308:8 312:10,15 467:10 kill 326:1 328:5 329:6 killer 308:11,16 325:18 kind 126:2 325:24 385:2 483:7 kinds 374:22 knew 513:19 know 18:1,24 19:8 21:24 22:9 51:6,8 53:13 53:16 58:7 59:2
---	---	---	---	--

53:16 58:7 59:2 59:20 63:8 68:8 74:8,23 84:1 87:18 88:17 92:18 99:8 111:12 119:1 119:16 135:1 140:15,18 143:9 155:16 160:3 165:17 173:5,9 175:6 183:3 187:11 202:5,5,6 205:11 211:1,20 221:9 222:19 230:13 250:21 251:20 258:23 274:2 276:19 294:24 295:7 342:1,9,10,11 348:15 350:16 385:2 386:13 390:6 401:15 407:3 409:18 411:1 412:10 422:8,16 424:23 425:5 434:2 435:1 439:20 441:17 447:23 451:7 456:12 467:1 474:20 482:24 483:4 499:1 502:13 517:10 530:16,19,21 539:7 542:5,7 544:13 553:8,16 554:6,8,11,20 558:6 578:2 knowing 70:14 136:2 238:3 knowledge 18:18 19:20 21:19 23:10,12 24:19 25:4 28:4 54:7,8 58:18 59:4 63:11 64:21 65:9 70:13 72:7 75:24 76:7 76:23 77:9 80:14 83:8 84:12 87:3	89:18 90:1 95:10 95:19 97:20 101:13 104:11 105:2,3 106:6 109:3,17 113:3 114:2 117:9 121:1 135:20 140:2,2 143:22 144:17 145:18 148:2,3 150:17 153:1 154:20 155:24 157:14,16,17 158:2,23,24 160:17 163:3 164:22 165:11 169:9,10,19 170:15 171:9,12 174:19 175:5 180:23 184:24 191:17 192:2 193:21 203:22 210:17,24 213:15 223:14 231:3 279:18,23 295:2 314:2 323:6,7 329:15 334:16 340:14,24 341:9 345:10,20 348:16 352:14 359:2 360:5 367:11 379:17 423:14 424:24 441:18 474:21 486:17 514:22 531:1 538:21 542:12 552:24 553:5 554:12 knowledgeable 157:6 514:8 552:21 554:3 known 14:12 77:17,20 104:3 110:20 122:18 123:1 200:1,11 217:22 241:7 245:3,17 256:6 325:16	348:6 352:19 358:10 434:6 440:16,18 469:24 473:8 510:17,22 512:8 518:9,23 554:23,24 569:7 knows 86:12 Konstantine 122:14 Korea 187:23 277:6,8 <hr/> L <hr/> L 1:15 579:12 lab 253:8 label 477:8 Labeled 10:11,13,14,17,19 10:21 11:6,8 Labor 120:9 laboratories 269:1 laboratory 43:11 111:6 116:17 147:24 148:4,10 151:15 184:20 186:19 224:8 251:21,24 254:11 254:24 290:3 292:10 310:2 380:16 443:6,7,9 443:15 448:23,23 455:4 533:5 556:24 557:23 561:5 562:7 lack 140:22 lacking 431:19 433:24 lactate 183:18 309:14 lactose	309:14 laid 63:14 Lancet 250:10,11 Langer 405:8,12 406:5 407:17,22 Langone 14:12 514:2 large 58:22 98:22 99:5 larger 56:18 428:13 429:8 late 31:11 431:7 434:21 503:17 latest 250:14,17 255:1 lattice 268:13 Lawrence 132:6 lawsuits 24:23 lawyer 23:5 211:23 LAWYER'S 583:1 lawyers 19:23 26:1 27:19 159:6 203:20 211:3,24 lead 55:7 60:16 104:13 119:9 176:19,20 199:5 201:9 259:20 261:9,10 261:11 271:15 302:8,15 303:6 306:5,9,12 316:6 316:8 345:3 366:2 371:12 402:9,21 431:18 441:14,15 475:24 leading 505:3	leads 22:6 103:23 116:22 236:12,20 240:13 565:15 leaning 370:24 learned 340:17 leave 320:22 322:5 483:5 leaving 222:12 lecture 31:6 33:16 lectured 167:14 lectures 33:12 165:23 166:17,17 led 140:21 433:23 568:1 left 456:2,3 487:14 508:5,13 legal 70:24 490:11 Leigh 2:3 483:5 570:12 leigh.odell@beas... 2:5 lend 391:2 length 440:4 length-to-width 179:13,14 lengthy 263:2 lesions 119:10 345:12 420:8 let's 77:22 175:19 190:3 300:1 317:19,22 318:5,10,14 331:14 338:1
---	--	--	--	---

456:24 457:4 458:24 459:1 463:15 529:2 letter 9:13 58:19 63:21 63:22 197:17,21 211:4 212:1 429:24 430:4,9,21 431:16 434:13 436:4 437:11 497:3 539:16 540:10 letters 51:16 leukemia 158:14 level 82:1 176:13 258:24 259:11,13 262:7 264:4 283:2 316:8 316:10 352:4 366:12 394:9 475:16 478:12 510:9 554:11 levels 155:14 259:4,16,17 259:22 260:4,4,23 261:13,17 262:3 282:10,21 286:6,8 292:21 313:7 351:9,20 352:5,9 352:22,23 353:8 354:2 356:21 360:22,22 362:6 362:11 367:16,22 377:9 416:18 459:6 475:16 511:1 559:7 LEVIN 2:8 Levy 6:23 83:20 84:1 Levy's 84:4,19 85:3,11 87:9,12,16 88:1 LHG 1:6	LIABILITY 1:6 liberty 118:18 life 94:20 lifted 98:4,15 light 252:1 253:4 likelihood 519:3 limit 482:8 limitation 467:13 limited 463:6 498:8 limiting 108:14 limonene 47:4 166:12 line 12:6,9,12,14 64:17 95:1 344:19,21 400:2 401:3,4 404:21 407:3,5 462:15 490:16 570:3,18 581:4 583:2 lines 183:14 375:23 376:7,10 461:15 501:20 546:2 549:19 551:2 link 22:23 152:7,13 254:12 280:3 351:20 476:10 linked 284:7 285:13 349:14 359:2 475:13 571:3 linking 330:3 links 351:15	list 32:9 35:7,8,8 36:5 39:6,17,17,21 43:21 45:3 61:23 140:8,13 169:5,11 169:16 220:18,22 280:11,18 322:23 409:5 455:23 477:5 listed 36:13 43:24 45:9 46:16 47:16 49:9 49:11 65:6 66:6 66:13 142:15,24 143:5,24 144:3 170:4,5,8 184:5 201:17 220:16 223:1 245:20 270:14 327:7 417:9 419:6 425:14 476:24 490:14 listen 129:15 216:13 221:22 222:3 284:9 329:9 561:20 577:12 listened 254:20 listing 5:23 6:19 44:12 52:3 141:21 lists 179:6 Lit 44:10 54:18 liter 462:1 literally 235:20 571:7 literature 16:6 20:7 24:20 41:24 42:7 43:6 46:23 47:20 48:7 51:12,13 54:17,22 61:18 68:5,15 69:11 73:11	110:22 112:5,13 113:2 126:22 127:10 129:11 130:6 131:16,18 131:20 132:20,23 133:17,24 134:1,6 134:7,8,9,19 135:5,16,21 136:1 136:4,6,9,15 139:13 141:2,5,7 141:11,15 145:9 146:22 147:8 148:23 149:15 150:1,3,6,9,15,23 151:2,9 153:24 158:5,18 165:3 172:14 174:20 184:23 190:13 194:16 198:2,2 199:1 200:20 204:7 205:21 207:5 218:5 226:18 228:6 231:6 238:17 241:3 246:22 247:4,12,18,21,24 248:2 249:2 253:21 254:4,6 262:5 265:20 266:15 292:18,18 293:3 301:24 302:22 312:2 313:23 315:12,14 320:5 323:7 329:15 330:2,8 331:8 333:1,1 345:21 351:13 356:2 360:12 368:1 381:2 382:18 385:13,17 388:8,10,18 389:3 390:21 391:19 394:1,12,13,13,16 394:17 413:4,14 415:7,18 425:3 427:23 429:18 434:6 435:2	445:18 470:7 487:21 492:8,13 502:2 514:18 533:2,7 562:2 litigation 1:7,20 13:4,10 14:22 15:9 16:2 18:4 19:13,23 20:17,22 21:15 29:8,21 34:18,24 68:6,17 72:9 137:19 138:4,15 144:12 146:8 147:16 171:24 204:2,17 228:23 229:3 375:3 390:14 424:1,17 442:16 447:5,14 448:8 486:7,7,18 490:18 493:17 507:17 525:2,18 526:11 little 72:16 94:5 150:21 175:21 265:24 267:17 373:12 383:24 441:21 liver 294:12 331:5,13,21 467:10 LLC 4:11,11 LLP 3:2,7,12,16 4:3,7 local 287:7 299:24 312:6 312:11,12 314:6 356:17 449:19 505:2 localized 327:20 location 192:18 452:9 locations 459:7,10 460:15 461:23 462:10 LOCKE
--	--	---	---	--

4:3 337:18	208:3,11 211:11	291:15,16 294:15	573:23 575:17	lymphatics
logic	212:14 218:9	297:2,5,7 309:4	576:19	299:5
119:17	237:13 263:20	309:13 310:3	looks	
long	282:3,3 301:14	313:22 314:2,12	268:16 309:16	M
14:17 64:11 74:7	305:13 310:4,7,8	332:20 335:21	356:16 485:13	M
173:12 182:18	310:9 316:1,14	340:1 357:16	lost	2:14 39:18 381:11
239:8 251:15	335:5,12 343:6,13	374:11 380:13	545:22	ma'am
322:8 486:13	343:15 356:14	381:5,6 384:24	lot	164:15 443:11
524:22	357:9 363:9	386:20 413:15	290:8,13 304:2	448:17 497:20
long-term	366:12 368:3	415:10 420:15	373:11 433:5	571:23
11:17 116:21	372:6 380:2,8	428:3,7 464:17	lots	macromolecules
329:23 438:10	406:11 411:7	465:2 469:5	289:24 575:24	470:1
longer	413:21 417:12,18	477:19 478:19	low	macrophage
358:17	418:19 419:20,23	494:23 520:2,4,12	191:18 192:5	308:10 309:10
longitudinal	429:22 435:12	533:19 534:22,24	282:21 293:7	310:8 328:18,24
179:20 182:18	436:3 438:8,15	559:5 561:3 577:7	429:21 459:5	330:12
244:5,8	444:24 446:8,11	looking	480:17 481:5	macrophages
Longo	446:14,14 449:2	42:23 44:6 59:9	lowest	103:20 183:19
5:19 36:15,18 38:5	454:17 455:16	69:3 73:11 161:2	264:16	308:14 310:24
48:20 247:7,16,17	456:24 457:4,22	162:3,21 164:23	ludicrous	325:16 327:18
248:21 249:8,9,13	460:17 461:1	176:11,13 179:9	280:1	329:6,17 356:20
249:20 250:1,7,14	464:20 466:19	183:2 185:1	lumped	402:10,22
250:21 251:8,13	470:15 472:8	188:10 202:23	315:23 324:1	Mahwah
277:3 428:7	475:6 484:22	206:9,24 209:13	lunch	1:14,14 13:8
446:23 447:3,19	494:16 501:22	210:11 211:15,18	22:17 196:3 386:19	main
460:23 493:14,19	509:3 510:24	216:6 270:8	Lunchroom	443:19 514:17
520:22 521:16	520:16,19 537:3	278:17 279:3	25:14	major
526:14,17	538:22 548:11	283:20,24 286:2	lung	167:23 327:24
Longo's	552:6 563:24	286:18 287:2,9	198:18 239:6	470:20
48:11 73:24 247:7	566:23 574:18	305:20 309:19	258:19 291:10	majority
521:24	looked	332:10 360:18	294:11 299:10,12	231:4
look	41:14,19 42:17	369:24 372:4	308:7 309:6,13	making
16:24 41:7 45:5,8	45:16,17,17 47:3	373:2,3 375:5	312:13 323:19	155:10 173:20
45:15 49:20 50:14	47:16 52:11 61:21	376:22 378:16	402:10,22 467:24	374:4
73:15 84:10,15,20	66:18 84:7,11,13	380:5 381:10	468:1,8,20 512:24	Man
88:24 99:11	87:20 88:22	391:12 396:8,11	lungs	123:23
103:16 116:11	101:19 102:12	404:4 415:7,19	153:15 300:20	manager
117:14 126:14,22	114:21 137:3	438:9,10 440:1	301:4,13 302:7,14	548:22
160:18,23 161:6	138:6 139:1,3	464:10 469:2	303:5,14,16 304:4	mandate
161:17 162:1,11	169:23 188:6	483:10 485:8,10	304:17 306:4	126:18,21 127:9,16
163:13,23,24	189:23 190:1	502:1 525:24	307:5,14 310:14	127:22,23 128:14
170:18,22 175:8	197:6,9,12 213:1	530:12 536:7	344:16 345:3,12	128:24 129:6,9,17
176:7 188:9,23	213:4 251:14	537:2,5,16,23	402:2	129:22 130:3,4,11
190:6 199:13	252:21 260:15	551:6,21 556:14	Luzenac	131:4 136:24
203:13 204:18	264:23 266:21	556:19 557:4,18	63:23 456:1	199:17
205:10,13,19	271:5,8 278:10,23	558:19 559:9	lymph	manifestations
206:23 207:17	279:9,15 283:16	560:6 568:23	11:16 299:4	470:4

manner 22:14,19 67:17 145:5 179:20 426:21 480:21 481:10,12 483:22 484:17	92:21 99:18 102:17 106:9 115:13 117:24 119:18 121:14,19 125:7,12 126:3 175:10 207:19,23 208:6 386:7 393:6 393:10 398:20 405:13 406:14 418:23 430:3,5 454:9 457:6,7 469:7,12 471:16 471:21 480:6 481:14 482:17 500:9,12 507:19 522:20 549:9 562:21 567:3 575:10	Marte 4:16 13:3 mass 48:20 292:12 301:19 465:5 mast 103:20 master 132:7,8 masters 166:1 matched 52:15 material 25:16 27:15,16 77:12 181:24 197:11 224:22 408:14 427:17 453:3 455:11,19 538:11 539:21 materials 26:3 31:16 50:16 50:24 51:2,6,12 51:19,23 52:4,19 53:23 54:3,9,10 58:5 59:19,21 64:2 73:17 76:16 93:20 141:24 196:14,19 203:24 213:10,11 374:23 math 451:8 Mattenklott 11:6 matter 13:9 176:22 303:21 364:14 441:2 447:6 Max 537:21 MDL 18:4 26:19 34:23 40:10 48:11 49:24 250:1 525:18 526:8,20 527:2,5 mean 20:24 22:19 29:10	29:14 39:3 46:20 52:21 63:5 64:8 74:24 76:10 79:14 87:2 92:9 127:22 134:23 147:23 157:15 158:12 181:15 183:4,5,6 187:11,12 192:20 195:16 199:23 201:13 204:6 212:21 225:6 234:22 238:7 252:10 255:6 257:17 268:6 341:20 348:18 350:8 351:22 354:15 355:6,8,17 361:19 368:19 369:3 400:21 401:20 413:2,5 416:24 423:1 448:14 475:4 481:11 483:20 484:16 490:7 492:17 561:10 571:22 572:3 meaning 235:20 329:16 366:23 549:21 550:19 551:9 meanings 235:15,19 means 70:7 157:16 192:15 341:21 400:22 456:12,14,21 579:20 meant 277:6 369:7 485:14 490:10 measure 362:4 363:2 466:19 measured 235:23 269:10 270:17 290:3,9 309:2,5,7,14 459:6,22 460:12	460:14,20 465:4 466:21 467:3 474:14 478:13 measurement 137:16 176:15 301:10 measurements 176:14,14 186:15 456:15 460:9,11 475:15 measuring 292:5,11,12 352:17 354:2 517:21 mechanism 24:13 119:12 151:10 199:24 200:24 220:1 271:13 306:23,24 307:3 349:1,16,23 350:2,7,22,24 356:9 359:4 361:15 371:5 373:4,5,8 377:3 381:18 382:5 383:1 400:3,15,18 401:5 402:1 403:6 431:18 432:6,11 432:16,22 433:17 433:23 440:18 470:10 473:3 504:1,10,15 505:4 505:17 508:9,17 509:9 512:23 513:2,11 553:4 mechanisms 122:16,24 152:2 200:24 236:16 328:3 347:16 364:21 365:3 371:11 382:16 383:8 401:22 402:9,21 514:19 544:1 545:8 546:8 media 25:6,17 152:14 254:21 450:4 532:7,21
marked 12:13 16:20 26:24 27:17 35:15 36:21 40:4,9 43:12,16 50:4 53:7 55:4,8 57:1,7,11 60:7 62:20 65:7,19 75:14 78:16 83:21 85:10,12 88:10	marker 351:2,13,14 352:20 353:3,14 markers 10:8 309:5,20 311:10 359:8,23 360:2,14 361:13 361:23 362:6,12 478:19 market 2:14 451:19,20 marketed 496:22 498:1,13 540:20 MARKETING 1:5 marking 35:19 50:8 53:11 93:2 102:22 115:18 175:7 481:18 562:17 563:1 marks 80:18,23 96:11,16 96:24 97:2,10,24 101:18 102:11 105:20 113:21 115:1,12 116:4 119:15 578:9			

median 243:2 428:9	421:15	290:15 303:24	140:16,19 143:10	340:20 341:4,11
mediated 300:6	memorandum 202:12 203:5	316:12,13,13	199:19 214:1	356:19,20 434:20
mediator 216:11	memory 161:11 188:9 191:5	322:6 466:22	223:19 224:10	499:7 506:24
mediators 296:13 301:23	194:2 419:1 531:3	492:2	238:4,8,16 306:2	migrated 198:17
359:9 363:3	men 284:20	metals 9:20 166:11 268:8	413:12 434:11	migrates 371:8
medical 68:4,15 112:12	menarche 31:10	268:13 270:17,22	445:8 501:20	migration 197:10 240:4
113:2,10,16 141:4	menopause 31:11	271:20 272:17	methods 380:20 413:16	414:15 430:18
141:7,11 146:22	menthol 166:12	274:6 278:6,7,18	Mhegarty@shb.c... 3:5	431:11 432:4
147:8 150:6	mention 272:18	278:24 279:4,10	mice 264:11,22,22	433:14,18 434:4,6
152:19 153:3	mentioned 29:11 33:7 166:18	279:16 280:3,12	465:10	435:7 505:15
154:7 156:18,20	196:13 305:4	280:15,19 281:5,6	Michael 5:22 35:9 39:8,18	millers 438:3
156:21 157:3,7,10	325:15 328:10,14	281:11,18 282:5	40:10 422:5,13	milligrams 264:8,16
157:19 158:16	389:22 395:13	282:11,14,15,20	528:9	milliliter 461:18
177:1,3,4,17	436:9	282:24 283:21	Michelle 1:15 579:12	million 288:2 462:1
227:19 246:22	mentioning 398:14	284:4,12 285:3,4	micrometers 242:22 467:19	mind 42:21 159:23 284:7
247:3,12,18,20,20	mentions 393:4	285:14,24 288:1	468:2	302:23 347:5
247:24 248:1	Merritt 10:7 469:14,15	289:1,6,8,14	micron 242:23 429:7,14	372:20 380:14
313:23 347:12	470:16 471:11	290:13,16,18,20	microns 239:2 242:21,22	391:14 414:7
355:10,19 385:13	473:20	290:21,23 291:20	428:12,13	497:15 498:24
385:17 401:14	Mesothelial 11:11	292:3,13,22	micronutrient 316:2,5	502:20 520:18
415:18 492:7	meet 28:6 468:19	293:14,18,19,22	microphone 39:12 208:18 251:1	536:6 537:20
514:3 533:2	met 19:24 28:9 554:15	294:16 295:13,19	495:20	544:6
medicine 14:12,15 22:16	554:16	296:5,23 315:20	microphones 196:1	mine 43:8 86:4 100:5
30:4 149:22	Meta 207:2	315:23,24 316:1	microscopy 252:2 253:5	277:8 284:23
167:19 223:6	meta-analyses 232:10 415:11,14	316:15 320:8	microspheres 197:14	380:19 459:12
meet 28:6 468:19	meta-analysis 6:15 60:14 205:15	322:7,9,10,14	middle 231:2 244:24	mined 187:20 269:22,22
meetings 555:18	206:4,10 207:3	323:23 418:21	473:22,23 480:24	mineral 182:19 408:12,21
meets 99:20 467:7	231:19,24 232:15	457:11 491:17	496:12 520:21	mineralogist 186:4,6
Melville 2:19	358:14 477:22	492:9 517:4 534:7	549:19	minerals 108:15 180:16
member 435:23 444:6 555:9	478:2	534:24 535:19	midway 512:6	243:24 406:22
555:11,12	metal 224:4 282:16 288:5	556:20 557:1	migrate 240:5,6 298:15	407:12 455:24
membership 444:2,9		559:13		490:22
membrane 420:6,7,12,18,19		meter 459:8,24 460:16		miners 438:3
420:21 421:2,8,13		method 286:16 380:20		
		410:16		
		methodologies 252:4,22		
		methodology 67:8,22 112:1,4		
		126:19 128:14		
		129:1,7,17 130:3		
		133:3,23 134:17		
		135:13 136:24		
		137:18 138:3,13		

minimal 264:9,10 421:5	305:12 368:6	269:1	236:11,22 237:7 551:10	392:23 443:17 444:2,3 512:13
minimum 255:3	models 138:8 233:5 335:15 346:17 372:9,14	motion 339:18	mutation 87:1 236:10,14,15 236:16,16 237:3,4	nationwide 555:10
mining 123:16 257:21 419:9,12	542:15,16	mount 3:17 325:12,24	mutations 86:8,15 94:18,24 95:1 365:14 478:12	natural 308:11,16 325:18
minor 166:9	modified 310:21	mouse 334:18	<hr/>	nature 112:21 228:7 244:17,20 246:20 467:23
minus 61:17	molecular 6:8 186:2,3 474:10 544:2 545:9 546:9	move 336:18 426:20	N	NCI 8:8 393:1,4 394:3 394:21 395:8,23 397:1
minute 383:14 417:6 421:9 556:7	molecule 369:6 441:5 465:22	movement 198:19	N 5:2	NCI's 394:18
minutes 195:21 277:12 482:14	moment 32:23 35:7 39:15 94:3 102:3 122:8 163:4 206:23 443:19 537:9,13 539:14 570:8	moving 316:11 337:23	NAD 456:8,10,12,21	near 508:4
miscited 407:21	money 229:2,12	MSDS 45:9	Nahoum 116:10	necessarily 76:3,5 77:10,18 298:11 357:2 569:6,7
mission 73:3 256:17	monitor 360:2	MSDSes 45:2,5	name 13:2 14:4,7 19:15 19:18 28:18 33:15 83:19 117:3 155:6 173:9 191:5 197:3 197:3 218:14 219:8,14 220:11 222:19,20 231:21 335:4 442:14 507:16 530:23 572:6	necessary 72:5 135:13 201:3 201:18 241:17 255:4 263:15 265:7 266:11,19 282:11 292:22 298:8 580:4
misspoke 277:4	monitored 360:7	msilver@coughli... 3:19	names 44:8 132:4 232:12 236:3 514:4	necrosis 298:19 360:6
misstates 115:6 300:23 557:8 563:7	monograph 8:21 9:21 435:6 457:5	mucin 350:5,8,12,18 351:4,9,14,20 352:4,9,17,19,21 352:23 353:1	nanometers 428:14	need 32:24 35:12 85:14 103:16 122:9 161:6 187:12,13 209:16,22 222:14 232:11 237:5,5,10 237:11 267:17 293:3 321:12 335:12 337:21 344:1 369:17 371:4 380:2 454:23 483:7 523:11 537:8
mistreat 318:18	Montgomery 2:4	mucociliary 467:22 468:6	nanoparticle 224:4 466:21	needed 253:24 271:16 276:13 284:24
mistreating 318:21 319:2	month 20:19 522:13	mucous 191:19	nanoparticles 303:23,24 304:9,15 309:4 429:6,10,16 429:16,20	
MITCHELL 2:8	Mori 481:2	multifactorial 129:14	NAPOLI 2:18	
mixtures 491:4	morning 14:2,3 42:3,9 43:4 43:18 55:4 57:13 64:5 65:1 73:21	multiple 83:9 101:14 106:6 106:6 142:5 285:18 302:17 325:2 327:6 369:1	national 15:20 77:24 149:21 149:23 154:14 197:23 215:8,16 215:17 220:2,3 223:4 264:6	
MIZGALA 4:8	morph 331:23 332:1	murdering 117:3		
Mm-hmm 40:12 75:22 181:21	morphology 244:20 268:15 305:24 324:17	mutagenesis 237:12,20		
Mm-hmm-hmm 205:10 447:1 458:8 468:21 471:23 552:9 563:5 569:1	morphs 514:3	mutagenic 236:6,8,10 551:9 552:2		
MO 3:4	Morristown 3:18	mutagenicity 237:16 551:22,23		
mode 502:11	Mossman's	mutate		
model				

358:16 445:22 needs 74:21 214:8,9 237:19 358:12 537:12 Neel 342:2,4 513:16,19 514:15 552:22 553:16 554:3 555:16 Neel's 513:22 514:24 553:5 555:4 negative 232:3,18 305:13 negatively 326:1 neighbors 173:22 neither 58:3 398:5 466:6 neoplasm 234:16 neoplasms 233:13 234:17 neoplastic 470:2 479:12,16 567:12,16,23 568:19 569:5,7 574:6,16,22 577:5 577:23 neutrophil 308:11 325:16 neutrophilic 357:18 neutrophils 103:21 308:14 309:7 310:8 311:1 356:18 never 50:2 88:22 112:16 113:10 150:16 153:19 159:7,17 163:17,20 164:8 165:8,13 177:18 332:18,20 448:12 448:15 556:3	563:8 new 1:2,15 2:19 3:8,8 3:18 13:8 14:11 14:14 15:7 29:20 29:24 32:4 69:4 80:6 173:7 227:22 228:18 259:23 260:13,24 290:2 342:2 482:16 487:2 Newton 502:21 Nick 132:6 nickel 77:22,22 122:12 123:15,23 124:2 124:11 159:1,1 272:20 279:20 280:21 282:18 283:3 286:1 287:16 288:10 289:8,21 290:1,7 290:16 291:18 293:6 297:17 314:16 315:6,16 316:2,16 319:24 515:21,23 516:15 516:16,20 517:19 517:22 518:3 536:1,5,9,11,12 536:13,14,15,17 536:20,22,24 556:16 557:5,19 558:4,5,21 559:6 559:10 560:6 561:3,16,23 nickel-induced 122:17,24 nicotine 224:3 NIEHS 15:20 443:16 NIH 8:18 9:7 15:22 nine	60:20 461:15 NIOSH 512:14 548:23 nitrogen 364:11,16,23 365:14 366:7 node 299:5 Nodes 11:16 non-asbestiform 178:22 180:3 269:11 non-fibrous 515:18 516:15,21 non-peer-reviewed 446:1 nondetectable 269:15 nonfibrous 189:15 269:3 480:17 481:5 normal 324:23 328:19 364:1 365:19,20 402:1,4 462:12,12 Notary 1:17 579:14 582:23 note 573:1 notebooks 54:6,10 108:21 480:3 noted 13:14 17:7 521:17 572:24 580:11 582:11 notes 463:20 544:17 583:1 notice 1:14 6:6 50:10 451:11 notion 129:2,12 November 26:19 40:19,20,23	47:2,11 48:12,22 69:19 70:1 83:17 86:1,2 229:8,13 249:20 388:3 389:13 395:15 500:20 521:18,24 NSAID 472:19 473:16 NSAIDs 469:3 470:7,11 472:17 473:7 474:1 NTP 197:24 220:23 221:1 264:6 402:11 435:15,22 436:7,21 437:1,10 437:24 nuances 399:17 nucleotide 379:24 380:6,22 381:8,14 382:18 383:6 number 16:18 17:1 27:1,3 36:6 37:23 40:9 43:17,19,20 44:2 44:4 45:3,10 46:16 48:13 50:9 53:12,14 55:5 57:12 60:12,18,24 61:1 63:1,4 64:13 65:13,18 75:18 78:21 79:15,15,16 93:8 95:23 101:21 102:13,22 104:5,9 106:14 107:16 117:15 125:21 126:15 141:22 142:15,24 174:21 187:15 207:23 255:3 266:10 332:11,12 343:19 344:4 359:23 392:1 393:3 394:14 429:5	430:4 433:22 436:15 444:22 464:10 471:21 476:21,23,24 477:7 485:5,5,9 489:10 497:1 498:10 509:24 513:4 517:20 542:18 560:24 562:18 563:2 564:13 567:24 568:2,9 numbered 6:20 93:15 numbers 66:4,5,13 286:18 309:10 575:24 Numeral 207:3 numerical 137:11,15 503:20 numerous 95:11 117:7 120:23 120:24 122:19 135:9 202:11 203:4 214:10 218:7 229:24 235:23 252:13 366:10,11 433:21 444:7 492:1 561:2 NW 4:4 NY 69:16 81:17,21 342:2 NYU 6:21 14:12 30:3,8 78:22 79:2 81:11 81:19 82:16 100:3 513:16,17 514:2,3 <hr/> O <hr/> O'Dell 2:3 5:7 20:23 23:11 26:5,11 28:9,20 28:24 32:20 38:15 38:20 41:12 46:1
--	--	---	--	--

46:17 47:12,23	195:13,15,19	330:4 334:12	495:14,21 496:2	96:21 100:12
49:17 50:18 52:6	200:14 206:19	335:11,24 336:4	498:16 500:6	102:3 103:11,12
52:24 53:20 56:8	208:1 209:2,10	337:4,11,15 338:3	501:21 503:12	105:11 106:1
56:11,14 60:19,23	210:4,8 212:11	339:16 340:5,21	504:6,23 505:11	107:7,9 108:1,10
61:3 67:2,19 68:7	214:2 217:16	341:14 342:13	506:6 507:7	108:24,24 109:13
68:18 70:4,20	218:19,24 219:9	346:3 348:20	510:13 511:20	110:3 113:22
71:10,22 74:11,18	220:14,20,23	351:11 352:12,15	514:14 516:4	114:14 115:5
75:1 78:8 82:19	221:7,13,24	353:10 355:14	517:16 519:10	116:6 122:6
83:2 84:22 85:5	222:24 224:18	360:16 361:6	523:7 524:1,14	126:10 134:3,20
85:13 87:13 89:19	225:3,14,18,22	362:14,23 363:19	526:13 527:6,20	135:17 137:21
90:17 91:4,20	227:6,24 230:9	364:24 365:16	528:15,19,23	138:17 139:7,23
92:6 93:3,21,24	231:16 232:23	367:8 368:22	529:15 531:9,17	140:10 143:13
94:14 96:12,21	233:2,20 234:7	369:19 370:13	533:15 534:18	144:14 145:2,16
97:12 98:5,19	235:8 238:12	372:17 375:24	535:16 537:8	146:6,24 147:14
99:22 100:12,23	239:18,23 240:15	376:17 377:20	538:18 540:4,12	152:9 153:6
101:8,22 102:2,23	241:19 242:13	378:11,17,22	541:15 543:4	154:10 155:21
103:11 105:11	243:7 244:14	379:14 380:24	544:5,10,19	157:23 159:19
106:1,23 107:3,7	245:5 246:9	382:9 386:12,17	545:14 547:8,16	166:21 170:12
108:1,10,24	248:23 249:15	387:5,21 390:15	548:8 550:3,14	172:4 173:16
109:13 110:3,7	251:7 255:20,23	392:3,16 395:9	552:12 553:13	175:18 178:18
112:14 113:22	257:4 258:13	396:18 399:10	556:7 557:7,10	179:3 180:13
114:14 115:5	259:7 260:6 262:9	400:8 402:23	559:16,21 560:9	181:12,19 184:3
116:6 117:19	262:22 263:17	403:9 405:23	562:12 563:6,12	185:5 188:3,19
120:3 122:1,6,8	266:13 267:3,12	408:22 409:15	564:11 565:1,11	189:6,21 190:23
125:20 126:4	267:18,23 268:9	412:16 413:9	566:20 567:18	191:12 192:11
127:18 134:3,20	269:6 270:4,24	415:23 416:21	569:21 570:7,14	193:3 200:14
135:17 137:21	271:22 274:8,13	417:15 418:14,22	571:13,17 573:10	206:19 212:11
138:17 139:7,23	274:17 277:10,14	423:3 424:2,18	576:9,13 577:15	214:2 232:23
140:10 142:12	281:7 282:6 283:5	426:8 428:21	578:6	233:3,20 238:12
143:13 144:14	284:13 285:15	434:16 436:11	oath	255:20,23 257:4
145:2,16 146:6,12	286:10 287:9,20	438:12 439:6,12	13:16	258:13 262:9
146:24 147:9,14	289:16 291:6	439:18 440:11	OB/GYN	263:17 266:13
147:19 148:19	292:24 293:20	446:5 447:16	191:15 193:9	267:3 269:6
152:9 153:6	294:18 295:24	449:23 451:21	353:24 360:9	271:22 274:8
154:10 155:21	296:19 299:15,19	453:15,17 458:4	361:10 362:18	281:7 282:6 283:5
157:23 159:19	300:22 302:23	460:6 462:3 463:2	554:10 555:19	286:10 287:20
161:5,16 162:24	304:19 305:6	463:8 465:15	OB/GYNs	293:20 294:18
166:21 168:12	306:7,15,19 307:7	473:5 474:16	167:24	296:19 300:22
170:12 172:4	310:15 311:19	476:6 477:15	obesity	305:6 306:7,15
173:16 175:18	312:21 313:10	478:8 479:1,9	301:15,15,17	313:10 314:20
178:18 179:3	314:20 315:8	481:23 482:2,7,17	object	324:12 329:13
180:13 181:12,19	316:21 317:1,9,15	483:16 484:5,11	32:24 47:12,23	330:4 334:12
184:3,17 185:5	317:20,24 318:7	485:17 486:3,15	49:17 52:6,24	340:5,21 341:14
187:4 188:3,18	318:12,16,22	487:11 488:14,21	68:7,18 70:4,20	342:13 346:3
189:6,21 190:23	319:1,6,13 321:6	489:6,22 490:20	71:10,22 82:19	348:20 351:11
191:12 192:11	322:1 323:3,15	491:7,15,22	85:13 87:13 89:19	352:12 353:10
193:3 195:1,4,10	324:12 329:13	493:13 494:13	90:17 91:20 92:6	363:19 365:16

367:8 368:22	299:15 304:19	observable	386:9 436:19	540:23 542:17,21
369:19 370:13	307:7 310:15	264:3	472:3 495:21	542:24 543:16
372:17 378:11,22	311:19 312:21	observation	524:18 538:8	569:24 570:14
392:16 395:9	315:8 321:6 322:1	151:14,17	542:21 545:21	571:10,13 573:18
396:18 399:10	323:3,15 335:24	observations	570:1 572:3	576:9,13 577:14
402:23 416:21	337:5 355:14	223:24 224:7	okay	once
417:15 418:14	360:16 361:6	observed	40:18 42:18 49:8	371:6,6 468:9
423:3 424:2	362:14,23 364:24	517:15 572:23	56:13 58:24 60:23	oncologist
428:21 434:16	376:17 377:20	Obstetrics	61:3 65:17 74:5	177:9,11 354:1
438:12 446:5	378:17 379:14	563:22	84:17 91:9 98:18	554:23 556:2,6
465:15 473:5	380:24 382:9	obviously	100:21 101:2,12	oncology
476:6 477:15	387:21 390:15	339:17 479:14	113:9 114:20	177:13,15 554:10
478:8 479:9	392:3 400:8 403:9	occasion	121:18 122:22	555:22
524:14 526:13	405:23 408:22	149:12	130:22 146:10	one's
527:20 533:15	409:15 412:16	occasions	161:12 162:13	79:8,20 80:11
540:4 552:12	413:9 415:23	339:7	178:23 181:9	82:15 87:1
566:20 567:18	424:18 426:8	occupational	195:22 205:15	one-on-one
569:21	439:18 440:11	120:20 123:15	207:13 208:19	167:5
objection	447:16 449:23	512:13	209:19 210:18	ones
26:5 32:20 38:15	451:21 453:15,18	occur	218:1 220:8,24	54:21 140:9 171:7
46:1,17 56:8 67:2	458:4 460:6 462:3	236:17,18 327:21	231:1 250:5 259:3	220:21 223:1
78:8 83:2 91:4	474:16 479:1	363:17 365:15	267:10,18,23	272:19 502:16,20
93:21,24 94:14	486:10 487:7	402:6,18 403:3,7	277:13 291:17	573:22
96:12 97:12 98:5	488:10,19 489:2	473:4 474:14	304:14 315:21	open
98:19 99:22	489:16 490:8,24	475:5	317:4 319:6,13	37:21 82:6 370:6
100:23 101:8	491:12,19 493:8	occurred	332:12 347:6	openings
112:14 117:19	494:8,10 498:3	291:5	348:2 349:8 353:5	333:23
120:3 147:9	500:2 501:16	occurring	368:10 378:3	opining
148:19 162:24	503:7 504:2,17	357:1 373:20 478:6	380:11 382:22	434:24
168:12 184:17	505:8 506:3,20	occurs	384:21 386:24	opinion
187:4 195:1 209:2	510:11 511:17	123:16 237:9	397:7 402:16	23:2 25:19 30:6
209:10 217:16,17	514:12 515:24	260:16 327:16	404:6 426:2 427:6	31:14 54:16 57:6
218:19 219:1,9	517:6 519:8	331:20 475:4	427:13 430:20	71:1 72:2,13,24
220:14 224:18	528:15,19 529:15	odds	436:5 441:23	74:2,3 76:20
225:3 227:6,24	531:9,17 534:18	564:16	442:19 443:4	80:12,13 90:11
231:16 234:7	535:16 538:18	offer	444:8,24 447:2	92:12 101:10
239:18,23 240:15	541:15 545:14	26:3 72:9,18,22,24	451:6 453:9 454:6	112:6 113:7 114:1
241:19 242:13	547:8,16 548:8	150:10 151:3,7	454:17 457:18,22	115:10 118:15
243:7 244:14	550:3,14 553:13	offered	458:24 459:18	138:9,22 139:10
245:5 246:9	557:7 559:16,21	150:18 163:17	460:2 482:4 484:9	150:3,18 152:22
248:23 249:15	560:9 562:12	offspring	485:15 495:2	156:15 165:18
259:7 260:6	563:6 564:11	176:24	498:17 505:21	172:13 183:22
262:22 268:9	565:1,11 573:7	oftentimes	506:11 508:16	189:11 193:15
270:4,24 284:13	objections	118:16 164:2 324:1	509:23 520:2	194:9,23 195:7,9
285:15 289:16	50:19	377:1	522:15 523:7	198:9 199:2,3
291:6 292:24	objects	oh	524:22 526:4	200:9 201:21
293:21 295:24	126:5	84:17 142:17 251:2	530:15 536:20	214:6 215:12

219:15 220:12	138:13 140:21	218:2,14 222:19	165:4,9,15 167:13	363:11 375:24
228:4 234:4 236:5	146:21 147:7	organizations	167:20,23 169:6	376:3,6,10,15
241:18 243:20	148:9,12 149:5	46:6	171:2,19,20 172:3	381:15,20 382:2,7
246:15 248:20	150:10 151:3	organize	177:23 178:4	383:2 385:14
249:4 253:17	163:18 165:9,14	463:19	191:8 192:10	397:11,15 398:9
255:12,16,18	176:2 189:2,9,20	organs	193:13,17 194:10	400:4,20 401:7
256:23 257:6	198:6 212:5 226:6	300:16 311:8 513:3	194:15,17,21	415:8,15,19 431:3
258:10 259:4	226:10 227:21,22	origin	196:23 201:9	431:19 432:5,12
266:6,7 267:6,10	228:8,14,18	192:9,14,18 193:1	205:9 206:1,13,17	432:17 433:24
268:4 269:4,18	230:16,18,19	original	207:9 208:15	438:18 444:14,19
271:10 272:7,10	238:5 249:12	135:4 432:7 580:15	209:1,8 210:2	469:4 470:8,21
276:14 278:12,16	266:20 278:2,8	OSHA	216:3,16,22	472:6,16 473:4,17
281:21,22 298:5,9	373:24 374:7	120:1,8	217:14 218:18	474:1 475:17
302:2,6 306:22	391:23 392:13,22	others'	221:5 222:9,22	476:5 478:20
309:22 311:16	394:23 395:6,8,24	79:6,18 80:9 82:13	226:21 227:5,10	479:21 499:5
315:5 319:24	396:1,3,17 398:7	outcome	230:7 231:7,14	500:1 504:11,16
320:3,6,7,11,15	399:3,7 422:3	31:8 104:22,24	232:22 233:17	505:19 507:1
320:24 321:1,2,21	445:5 499:23	151:11 183:1,16	234:5 239:17	508:11,19 509:11
330:7 349:15	501:7,15,19 502:3	183:23 446:3	240:13 250:11	511:11,16 513:13
350:19,21 355:20	505:24 506:18	outcomes	254:5,7,13 255:5	514:11 518:5
356:4,14 374:5	509:17,20 517:18	184:12	255:13,22 256:15	520:6,10,14 532:7
380:21 381:13,20	540:11 547:14	outdoor	257:2,11 258:6,9	532:12 533:3,7
382:4,12,23 383:5	548:2,4 576:5	173:3 459:4,7	258:12 259:5	543:2,12 544:3
383:6,10 391:2	opportunity	460:15	260:5,15,15,20	545:10 546:10
395:13,19 396:6	424:6,10 448:11,19	outline	263:16 264:20,21	552:22 558:3,11
396:21,22,23	449:1 579:9	133:20	265:2,8 267:2	558:20 559:12
419:9 422:24	oppose	outlined	278:14 279:7	560:7 561:8,24
424:14 432:10	126:11 339:17	506:17	280:5 281:5,10,17	570:20 571:3
434:1,7,8 440:8	opposed	outside	282:4,12,18 283:4	575:6
440:23 441:11	111:8 239:3 453:14	16:10 34:5,10	283:13,16,21	ovaries
447:23 465:12	order	ovarian	284:7,11,17	293:15 299:8,14
466:23 469:2	51:13 55:1 98:23	6:11,16 8:6 9:16	285:14,23 290:19	300:21 302:8,15
486:8,13,17,19,22	118:21 126:2	21:22 22:12,24	292:23 294:16	303:6 304:18,24
488:13,16 500:5	145:23 146:4,8,11	24:24 25:4,12	296:17 297:6,6,12	313:24 314:3,19
501:10,12 503:11	146:16 212:19,19	29:12 31:4,7,24	297:17,21 298:1,2	315:7 320:2,14
505:7,13 510:15	237:20 420:7	32:5,10 60:15	302:8,16 303:7	321:5,24 322:20
513:10 519:24,24	organ	62:17 73:2,7,12	306:5,12 307:1	323:2,13 332:21
530:4,6,7 542:11	33:17 165:23 288:6	126:24 127:13	311:17 349:11,14	340:3,20 341:12
547:20,22 551:18	298:22 301:12	128:6,9,18 130:8	349:17 350:2	346:1,14 358:8
560:18	312:6,12 330:14	130:12,18 131:1,9	351:1,10,16,20	370:12 403:8,14
opinions	331:10,11 355:5	141:13 148:14	352:7,10,18,24	435:8 464:19,21
22:23 25:15,22	371:18	149:7 150:16	353:4,9,16,20,21	464:23 465:8
26:3,17 29:24	organism	152:8,13,21 153:5	354:4 355:12	468:15,23 499:16
30:4 34:6,8 56:6	329:5,7	153:21 154:9	356:7,8,9 359:12	507:4 574:23
62:10,12,13 69:2	organization	155:2,8 156:17,24	359:17 360:3,14	ovary
71:21 72:8,18,21	152:20 153:4 154:8	157:5,13,22	360:15 361:1,5	192:20 271:16
73:19 135:14	216:19 217:10	163:21 164:9,20	362:1,4,10,13	287:17 288:11,20

288:23 291:5,12 291:21 294:7,10 298:10 299:4,6 308:6 312:8 313:9 314:14 315:17 324:11 345:22 346:22 354:10 356:14 403:18 467:6,9 517:23 518:4,20 overall 541:21 overload 402:10,22 403:7,13 overview 409:8 overwhelm 402:8,20 overwhelmed 365:8 366:16 367:4 367:17 oxidant 297:9 324:20 371:20 Oxidants 363:11 oxidase 476:1 oxidation 367:19 475:9 oxidative 297:2 307:22 369:15 375:20 421:20 470:13 471:7 486:20,23 487:5 504:19,21 oxide 110:23 307:17 oxidized 420:22 421:16 oxygen 103:24 119:14 256:13 257:8 297:10 300:11 308:12,15 309:12 363:24 364:6,15 364:22 365:6,13	366:2,6 367:18 469:24 475:10 504:14 <hr/> P <hr/> P 2:3 P-E-N-N-I-N-K-I... 232:14 P.C 2:2,13 p.m 196:2,6 277:18,22 319:15,21 338:19 338:23 383:16,21 442:2,5 463:24 464:4 485:19,23 523:13,18 529:5,9 578:11,14 PA 2:8,15 page 5:14 6:5 7:5 8:5 9:5 10:5 11:5 12:6,9 12:12,14 35:22,24 36:2,4 38:8,10,10 38:22 39:4,4 40:23 41:6,8,10 41:15 48:13,16,19 49:10,12 51:19,21 52:16 64:12 79:4 79:13 84:16,20,21 88:16 89:6,8,8,9 91:11 116:8 126:17 127:4,5 128:24,24 199:13 202:9,18 203:1,2 207:2 208:21 213:9 230:3,9,12 230:14 233:5 237:21 243:15 248:4 250:3,7,7 253:12,14 278:18 313:4,5 332:4,13 333:5 335:15 336:8,13,13 343:23 344:1,2,3	344:3 347:6 359:19,20 363:9 363:13 368:10 379:7,19 396:6 398:24 399:22 403:20,22 408:6,9 409:24 411:7 417:8 419:23 421:22,23 425:20 427:9 429:22 430:16 431:15 433:9,16 436:3,11 436:13 437:8,20 445:1,4 446:14 449:2,6 450:14,16 452:4,11 454:17 454:18 455:16,19 457:15,19,23 460:12 461:2 469:19 470:16 472:1 473:23,24 474:5 476:17,18 477:10 480:10,14 484:24 485:8 487:15 496:6,12 497:15 498:19 501:22 505:21 506:12,13,18 507:23,24 509:4 511:21 512:5 520:18,20 524:3 527:22 528:1 538:2,9 539:18 540:17 541:4 543:4,6,17,18 544:23,24 545:3,4 545:5,6,22,23 549:16,16,17,19 552:6 564:1 567:8 570:3,4 572:9,18 573:20 574:11 575:15,20 577:2 581:4 583:2 pages 41:4 48:23 49:2,5,7 99:8 266:17 359:6 396:13 425:20,24	450:6,19,23 457:17 502:13 538:1 582:6 paid 17:20,22 26:2 132:12 446:1 447:3 448:7 paints 181:5 panels 15:13 Paoletti 451:4,6 PAPANTONIO 2:8 paper 25:7 52:9 63:21 74:1 99:7 103:15 104:18,23 111:4 116:15 118:10,24 119:6 122:11,12 122:23 123:13 124:7 136:8 142:5 151:12 158:4 201:17 204:23 205:7,14 209:17 209:21,23 210:9 210:11,13,15 216:1 218:16 223:22 231:13 249:3 287:12 340:16,19 341:1,5 361:18 377:23 378:2 379:24 381:5 405:9,12,18 406:3,4,12,13,14 407:17 414:12 435:11 447:12 448:6,16 450:2 452:6,20 456:20 470:16 471:8,22 471:24 472:9 473:15 481:13,19 484:24 494:16 507:11,18 509:1 515:3,5 537:20 538:22 566:12,16	567:7 569:10,20 573:13 576:20 papers 51:12,14 66:11 69:9,10 83:7 112:19 133:11 137:5 140:20 151:6 160:18 204:4 250:12,13 250:14 378:5 381:4 408:2 473:11,19 531:20 531:24 533:18,24 534:11,13 537:1 paragraph 128:12,13,23 129:3 129:5,12,16,22 130:2 131:14 137:1 199:22 202:24 230:5,15 230:17 245:1 332:8 333:6,7,9 334:8,24 335:9,19 336:10 337:7 338:11 401:4 404:1,3,14,15,16 404:20 408:9 410:2 411:8,14 420:2 421:11 429:24 430:11,13 430:15,22,24 431:9,14 445:4 446:18 449:12 452:11,14 454:19 458:19,20 459:19 460:18 461:7 469:20,21 470:5 472:3 473:23,23 474:9 476:19,22 481:1 496:11 497:17 498:20 499:2 508:15 520:20,21 538:10 538:14 544:23 545:7,23,24 paragraphs 129:9 540:16
--	--	--	--	--

parameter 239:12	327:19 328:22 332:5 334:9,24	474:4 514:9 520:10 536:23,24 576:20	394:21 395:8,23 397:2	percentages 188:22 309:7
parameters 242:3 311:5	402:3,10,22 403:7 403:13 427:17	particularly 185:12 283:24 574:23	peer 97:18 171:5,14,17 210:14,16,18,21 211:2,9,13,16,21 212:4,9,17,22 213:4,8,12,13,16 213:21 215:10 445:20	perceptions 141:3
paraphrased 81:2	428:10,19 429:12 429:12,13 440:9 440:22 441:13	particulate 176:22 303:21 499:14 541:6	peer-reviewed 204:7 207:5 445:17	perfectly 338:14
parent 94:19	465:2 466:20 467:5,9	particulates 303:13,18,20 312:19 499:7	peers 554:22	perforated 120:21
parents' 95:2	particle's 339:22	parties 442:15 463:11	pelvic 10:6 11:15 349:10 349:22 566:1	performed 131:15 198:8 253:1 253:7,9 375:8 380:5 472:4 496:9 531:11
part 15:9 31:8 33:24 43:21 44:19 66:16 133:3,22 137:17 138:2,12 168:10 174:6,7 202:10 203:10 207:15 213:24 238:4,7 241:8,12,13 326:19,19 327:12 336:22 344:22 350:16 384:16 401:24 402:4 407:23 420:11 427:11 489:24 504:14 505:16 524:10,11 575:19 576:3	particles 185:17,18 186:14 198:15 238:24 240:14,17,20,23 254:9 266:11 286:24 293:4 299:3 301:4 303:22 304:3,10 304:12,15,16 305:3,4,9,9,12,15 305:19 307:15,16 307:17,24 324:1 324:24 335:22,23 346:22 402:2,8,20 426:4,6,12,14,16 426:20,24 427:16 427:22,24 428:8 428:17,24 429:8 434:7,20 464:11 464:18,19 468:11 468:17,18 491:6 506:23	parts 260:24 288:1 302:17 468:7	pelvis 507:1	perineal 6:16 9:15 60:15 127:1,13 128:18 130:9,13,18 131:1 131:9 205:9 206:16 207:8 208:13,23 222:21 279:6,20 286:14 288:20 300:3 332:22 333:14 334:4,10,17 335:2 336:9 345:11 346:15,18 370:22 371:7 372:15 373:9,10 376:16 394:22 396:9,12 397:2,14 400:3,19 425:22 428:1 499:14 505:18 510:3 518:12 520:6 541:6 548:16 570:19
participate 394:11	particular 104:19 163:3 183:16 189:3,10 191:4 197:2 201:7 237:1 244:8 255:10 259:14 275:8 280:15,19 281:10 282:15,16 301:20 303:8 312:5 326:2 330:13,21 331:6 346:10 362:17 365:22 369:22 402:14 424:11	pathologies 311:11	pending 173:5	perineum 233:8 278:24 279:11,16 287:19 288:13 320:1,13 321:4,23 322:19 323:1,12 324:10 335:23 336:16 340:2 341:11 345:8,16 346:2 357:24 358:6 362:22 370:10 371:24 373:21
particle 237:18,19,24 238:3 238:10 239:1,4,7 239:15,21 240:11 240:12,21 241:5 241:11,17,24 242:7,8,11,20 243:6 259:1 293:4 298:13,24 299:9 299:13,23 305:22 306:3 307:4,12 314:5,24 315:6,15 319:24 320:11 321:3,22 322:17 322:22 323:11,23 324:8,16,16,17 325:10,24 326:2		pathology 177:15 193:23	penalty 69:20 70:3	
		patient 177:19	pen 404:4	
		patients 177:6,8,23	penetrate 333:24 334:2	
		pattern 244:8	Penninkilampi 9:17 231:22 398:12 398:16 502:8 507:10,18 509:14	
		pause 407:24	Pensacola 2:10	
		pay 15:13 132:14	people 105:4 111:12 151:14 184:24 251:23 252:5,9,13 269:23 380:4,7 557:15	
		paychecks 227:17	people's 82:24 83:7,7 96:19 109:22	
		PCPC 4:6	percent 248:6,7 449:10,16	
		PDQ 393:1,1,4 394:19	percentage 99:2,13 188:1,15 310:7 456:5,6	

379:13 439:5,17 477:14 478:7 499:8 510:14 period 215:1,11 251:19 357:9 358:12,13 386:2 periods 357:4 peritoneal 8:7 499:9 peritoneum 233:7 499:8,17 perjury 69:21 70:3 permeability 420:6,13 421:13,15 peroxide 300:12 persistently 354:16 person 173:19 409:10 439:22 460:3 person's 94:20 personal 14:21 172:24 201:21 423:16 personally 253:11 256:3 276:11,24 376:11 personnel 443:8 perspective 264:13 553:3,4 pertinence 134:13 pertinent 135:16,21 pesticides 166:9 Peters 9:10 Petition 9:14 ph	1:20 Ph.D 1:13 5:4,18 13:19 177:5,16 252:16 579:8 582:16 phagocytose 309:11 pharmaceutical 409:6 451:15 452:14 pharmacopeia 451:24 phenotype 244:19 Philadelphia 2:15 phone 21:10 23:7,14 28:14,16 29:2 phrase 121:10 151:21 phrases 135:11 phrasing 489:13 physician 353:23 physicians 171:19 picture 509:12 PID 349:17,18 piece 314:24 Pier 64:15,18 411:10,15 411:19 412:5 494:4,12 Pier's 64:7,9 389:24 pipes 461:20 Pisano 285:11 317:5 318:24 319:12 336:21 338:16	339:3,5 place 115:11 395:17 516:16 placed 37:20 54:24 places 107:22 258:18 277:5 placing 518:11 plagiarism 79:5,17 80:16 81:1 81:4,10 82:12 88:7 99:21 plagiarized 82:23 98:24 plaintiff 73:4 126:4 127:17 171:8 173:15 211:3,23 274:9 390:24 393:22 412:20 533:9 plaintiff's 165:2 385:11 plaintiffs 19:7 20:1 21:21 23:6 26:2 27:19 34:19 50:20 59:1 142:11 143:2 144:10,22 148:16 148:22 149:9 163:16 171:23 174:4,8 228:22 254:3 332:19 339:16 375:2 390:4 412:15 532:11 533:12 plaintiffs' 2:21 16:1,11 17:3 17:10 24:11 34:5 34:10,23 35:3 40:3 49:24 53:5 58:10 132:10 139:16,19 140:15 142:1 143:20 159:6,17 170:19	171:1 211:23 212:8 213:17 254:14 273:17 275:13 276:2 385:22 393:14 447:4,8 463:11 525:17,19 526:10 532:24 540:2 plan 337:21 338:7 planned 463:18 platy 267:1,7 268:14,19 268:20,22 466:1,2 466:5,6,10,12 519:14,16,19 plausibility 24:14 68:3,14 69:15 73:6,16 126:24 128:3,16 129:3,13 131:5 135:15 137:7,20 138:5,16 144:13 145:1,15 148:14 149:6,16 150:11 151:4,18,21 152:3 152:23 156:16,23 157:4,12,21 172:2 189:12,18 190:8 190:11,20 193:12 198:19 199:6,23 200:7,11,17 201:12,14,20 202:3,8 205:5,8 205:20,24 216:2,4 216:7,15,21,24 217:13 218:17 220:13 221:16 222:7,8,21 223:20 223:24 224:6,12 233:12 234:11 238:11 239:16 240:2 241:10,18 243:5 256:11,19 257:1 266:20 267:1 270:2,8,21	271:3 275:4 276:22 278:3,9,13 281:20 282:12,14 284:6 285:1 290:18 292:17 298:9 299:21 302:4,6,10 311:16 311:24 320:17 333:17 349:2 350:6 360:19 368:4 372:7 373:24 376:23 377:3,13 381:19 381:24 383:2 398:8 400:12,13 438:19 440:10,23 441:9 469:1 470:10 471:6 475:7,20 499:24 504:5 506:14,17 520:5 546:5 568:4 569:15 571:1 plausibility/plaus... 221:4 plausible 127:11 128:16 130:7 151:11 152:2 306:5 313:9 349:16 350:1,19 356:9 361:15 382:6 401:22 416:19 432:11,16 499:13 504:10,15 505:16 512:23 513:11 541:5 play 382:19,24,24 445:21 470:20 517:11 played 399:6 players 325:17 playing 328:7 517:12 plays 31:13 565:5
---	---	---	---	--

please 13:15 14:6,7 23:21 29:18 33:6 38:14 51:21 60:6 65:14 68:10 69:23 75:3 85:23 91:23 102:8 107:12 130:20 137:24 142:22 147:2 159:21 166:24 208:19 211:10,19 225:23 234:2,21 235:9 236:3 250:3 330:9 332:16 387:1 390:20 411:2 421:9 430:13 433:12 445:1 446:15 449:5 499:3 500:15 510:20 524:6 527:23 543:5,10 566:24 573:19 575:15 578:9 580:3,8	247:21 338:13 365:19 371:14 391:22 430:12 497:9 pointed 43:1,1,3 102:14 191:14 359:5 453:8 pointing 120:6 122:16 points 76:2 96:6 116:13 116:18 118:22 119:3,5,7 397:23 polarized 252:1 253:4 policy 78:22,23 81:9,14 81:16,22 82:10,16 99:18 100:3 pollutants 166:2,10 polluted 290:11 pollution 178:10,12 224:1 polymorphism 381:8 polymorphisms 380:1,6,22 381:14 382:19 383:7 Polymorphonucle... 325:15 Pooley 248:7,15 population 117:10 159:4 401:14 458:17 461:8,12 462:17 populations 416:3 559:24 portion 83:16,18 84:18 88:15,16 93:9 103:2 106:14 115:19 121:20 128:4 524:5	540:10,15 550:1 552:3 576:21 portions 82:23 93:15 95:23 98:15 100:9 119:24 123:5 549:14 position 14:18 62:15 392:23 513:22 positive 140:22,23 207:7 possession 72:14 521:23 possibility 194:17 237:17 possible 124:9 206:17 208:14,24 391:18 400:15 406:18 407:7,20 495:24 505:4 518:2 570:20,24 571:8,9 possibly 156:2,6 286:23 537:22 post 44:16,21 57:4 post-report 48:2 potent 510:17,23 potential 30:14,16 44:4 90:9 151:7,8,10,11 152:2 190:4 256:8 280:13,14 281:23 282:1,4,23 283:11 285:4 288:4 314:7 320:20 324:18 342:23 373:5 385:5 401:5 403:2 403:2 423:10 425:10 488:7 499:6 508:8,17 528:12 529:24 potentially	322:12 507:15 potentials 281:6 powder 1:5 6:10 10:6 13:9 21:23 45:21 73:1 90:4 127:14 128:19 130:9,14 130:19 131:2,10 157:12,21 172:3 187:3,20 188:2,14 189:4,14,19 190:12,17,22 196:23 201:7,8 206:12,16 208:14 208:24 209:8 210:2 216:3,21 217:14 221:2 222:9 223:15 240:5 242:12 246:24 247:14 248:3,12,16 265:15 266:1 270:9 271:4 275:8 275:9,16 276:10 276:23 278:2,7,24 279:10 286:9 287:18,23 288:12 292:2 295:23 340:1,9 344:13 345:2 346:22 352:10 363:4 366:14 370:20 377:6 382:2 397:10 403:15,17 410:9,23 418:2,4 418:8,12 423:11 428:11,20 429:11 429:17 438:24 439:1 440:16 441:7 449:8,14 450:22 477:2 487:24 488:5,8 492:22 493:7,16 493:18,24 494:7 494:22 495:7 499:24 513:6,8	514:6 515:6,16,19 517:5 520:23,24 528:14 536:16,21 538:17,24 539:5 549:21 550:18 551:2,9 552:1 559:5 561:19 570:19 575:18,21 575:23 powdering 286:22 powders 9:18 185:11 231:10 248:8 493:21 495:12 496:9 497:24 PowerPoint 31:17 PowerPoints 167:3 PRACTICES 1:6 precaution 542:8,14,16 precautionary 542:2,6,10 prediagnosis 479:20 predilections 468:11 predisposes 87:1 predisposition 116:20 predominant 459:5 predominately 123:16 prefer 409:20 pregnancy 176:23 prejudice 339:12 preparation 27:7,12 44:19 63:5 prepare
---	---	--	---	---

28:7 39:21 52:23 63:3,6 67:24 77:2 77:3,7 97:17 133:7,15 149:13 prepared 16:17 42:10 52:18 52:18,22 53:6,21 54:14 55:2 63:8 63:10 66:22 67:7 67:9,16,17 69:12 70:15 97:5 98:13 99:6,9 387:15 389:12 412:10,15 419:4 422:2 preparing 26:23 27:9,13,24 84:5 88:21 95:24 107:18 133:3 393:21 394:6 539:4 preponderance 416:10 presence 11:15 186:8 266:19 292:3 299:2 324:24 357:17 366:1 402:2 450:21 466:20 507:3 512:9,17 present 4:14 94:19 95:2 188:16 275:23 276:1 353:16 366:13 418:6,7 presented 493:23 presenting 79:5,18 80:8,14 82:13 presently 406:23 407:12 president 251:18 press 176:10 pretty 74:7 253:22 394:8	440:13 442:21 prevalent 31:9 Prevention 8:7 previous 401:12 449:17 574:21 576:24 577:4,22 previously 395:12 494:19 500:12 507:4 primarily 124:1 138:10 139:12 308:13 447:19 448:20 464:11,13 487:4 primary 8:6 168:6 192:9,13 192:18 193:1 350:4 382:15,15 458:2,10 532:19 principal 443:20 principals 489:11 principle 542:2,6,10,13 principles 489:8,14 prior 19:12,22 30:18,19 30:19,20,22 31:1 33:12 41:2 54:11 54:13 72:13,15 141:5,16 152:15 165:1,6 203:16 254:7 290:4,4 332:18 333:1 362:9 393:16 394:6 395:14 422:11 423:21 486:6,17 500:16 503:14 522:2 532:9,10,23 533:8 533:11 pro-oxidant	257:10 301:15 probably 20:19 32:7 74:13 74:17 107:9 231:20 342:18 415:4 416:14 467:21 519:2 problems 399:13 process 231:5 241:14 254:1 256:15 257:11 263:12,16 265:8 265:11,17,18 266:4,6,9,12 285:6 296:9 300:4 315:1 321:16 327:21 328:19 347:18 348:9,11 366:18,23,23 367:2,4 369:14 370:24 371:23 381:21 384:12 476:13 480:20 481:9 577:11 processes 256:9 291:1 326:16 363:16 372:8 478:17 479:8 processing 409:6 419:16 PROCTOR 2:8 produce 183:18,20,23 223:15 237:12 262:18 282:20,22 282:23 285:5 294:1 307:14,21 308:12,14,17,18 309:12 324:20 345:11 365:23 368:12 369:12,13 370:10 425:9 440:16 441:13 produced 43:17 141:21	142:18,24 143:3 143:19 144:1,11 144:23 145:14,21 145:24 147:15 166:15 261:15 264:9 273:11,21 330:10 441:7 480:3 493:16 produces 223:11 264:14 345:11 441:1,4 producing 242:2 256:12,13 289:23 519:20 product 37:5 191:2 200:1 265:15,16,22 266:22 270:9,12 270:13 271:9,10 272:4,10,15 274:19 275:18 278:11 298:5 364:1 366:14,17 370:18,20 377:5,6 419:18 421:17 441:7 447:21 455:11 519:18 production 10:13 12:8 51:15 66:19 123:17 143:5 144:4 273:14 275:19 276:14,18 280:17 297:9,10 388:21 388:22 409:10 475:24 products 1:5,6 21:23 73:11 90:5 127:14 128:19 130:9,19 131:2,10 156:16 156:24 157:5,12 157:21 189:5 223:15 224:2,3 271:4,6 276:23 280:21 340:10 363:5 382:3	406:19 407:9 423:12 428:11 452:15 453:4 455:12 465:21 477:2 479:4 488:9 493:16,20 494:1,7 496:21 498:10,12 499:24 512:18,22 513:6,8,12 514:6 520:23 528:14 539:21 540:19 559:5 professional 1:16 112:6 113:7 121:13 169:6,12 169:17 200:8 215:13 224:14,17 226:19 228:15 281:21 315:18 320:7 321:1 322:21 330:7 385:9 393:1 419:8 445:10,15 579:13 professor 14:16 69:4,7 professors 81:20 program 77:24 154:15 215:17 223:5 264:7 programs 555:13 progress 331:3 499:19 541:10 progression 353:14 476:14 505:4 proinflammatory 296:13 298:20 475:22 476:1 proliferation 192:7 284:22 479:13,17 577:7,8 577:10 pronounce
---	--	--	--	--

507:16	61:12 62:5 75:24	162:6,12 163:13	414:1	81:12 84:24 86:19
proof	139:16 142:10	163:24 164:24	pulmonary	94:4 97:23 98:10
199:23 431:3	143:1,21 145:13	175:14 176:18	183:20 343:21	98:24 99:10 158:3
498:23 499:5	166:16 167:12	187:15 198:14	344:11 438:16	163:22 183:19
prooxidant	168:7 198:14	204:12 216:9	purchased	205:17 215:8
297:3	199:4 202:16	218:8 375:9	410:23	246:4 278:20
proper	203:11,20 211:8	380:10 391:13,20	pure	373:11 433:5
82:24 135:13	273:16,20 275:11	403:5 444:18	267:1,8,11 268:4,6	454:22 552:19
375:17,18 467:11	277:8 384:4	445:18,23 448:20	519:15	569:16
563:14	385:16,19 388:4	489:14 492:1	purpose	putting
propounded	390:3 391:6	538:16 539:10	134:5 229:18 246:4	44:5
582:9	394:16,17 457:14	publish	283:8 284:3	
protect	457:16	101:16 102:10	326:12	Q
325:21 326:13	provides	151:7 203:12	purposes	qualifications
355:2	200:23 256:10	publishable	14:22 36:12 50:10	422:17 443:3
protected	349:1	224:21	64:3,23 73:18	553:22 554:18
459:14	providing	published	76:17 84:5 94:10	555:4,7
protection	400:11	76:16 77:14 78:7	95:24 101:6 120:1	qualified
351:7	proving	78:12 112:1,9	125:17 128:7	537:15
protective	68:3,13 158:19	113:12 150:5,22	130:10 133:17	quantitative
145:22 146:3 359:4	proximity	151:9,12,22 158:5	138:13 139:6	137:16
protein	408:12 459:11	165:8,13 176:6	140:16 146:21	quartz
309:18 354:7 360:6	psoriasis	202:13 203:5,17	147:6 148:8 164:4	406:22 407:11
protocol	348:8,12	204:6,6,14 223:19	176:2 189:20	question
133:8,10,16	PTI	224:10,16 246:21	193:11 203:19	23:21 26:8 29:17
prove	4:10,11	247:3,5,11,18,24	211:8,16 214:14	32:23 33:6 38:17
201:2,4 496:20	public	248:1 300:18	226:5,10 229:20	41:9,13 46:13
497:23 498:11	1:17 8:18 9:7	302:13,21 303:2	243:6 248:19	48:4 51:5 61:6
540:18	260:14 503:15	303:12 374:18	249:11,11 298:8	62:19 70:6 72:16
proven	579:14 582:23	379:23 410:22	302:3 343:12	72:17 73:3,15
368:21 566:2,9	publication	415:14 441:10	353:6 373:23	77:16 86:6,22
provide	55:6 56:20 67:9,18	457:5 534:4	390:9 392:21	87:6,7 90:22,23
57:24 117:20,21	87:19 97:6,17	535:13,24 536:3	399:3 438:1,5,7	91:23 102:6,8
139:21 140:17	105:17 106:16	563:21 577:20	469:1 479:23	107:2,4,9 112:23
142:2 144:22	112:18 115:22	publishing	480:4 518:20	112:24 114:4,5
166:24 169:3	116:2 117:18	101:6 112:5 113:2	520:3 537:6 539:4	122:2 129:16
190:19 198:13	120:1 121:23	203:19 204:8,9	540:10 547:13	130:21 133:14,15
199:5 201:18	160:21 176:8	PubMed	pursuant	134:14 135:22
256:19 275:14	197:16 202:7	44:10 54:19	1:13	136:14 141:8
377:2 385:12	204:1 210:18	puff	purview	142:8,9,21 147:21
390:8 393:15	213:20 375:5	266:1	155:12	147:23 149:2,4
400:16 512:22	380:18 391:11	pull	pushback	150:1,20,21 153:1
provided	494:20 535:7	41:20 48:6 59:15	437:6	154:5,6 155:11
16:15 17:3 18:15	536:8 577:13	61:18 62:1 65:20	pushed	161:9,21 164:15
35:20 36:17 40:10	publications	66:12,16 413:19	437:23	164:18 174:23
43:4 49:23 53:13	75:23 78:15 133:11	431:1 570:8	put	175:24 183:12
55:3 57:13 59:23	137:2,3 138:10,20	pulled	39:13 76:4,14 78:3	192:1,24 194:2,7

194:22 199:11	414:17,17 417:10	74:9 463:16	7:15,19 115:23	350:21 505:24
203:15,16 204:19	420:14 425:17	quickly	116:3,10 117:2	576:5
208:20 209:22	427:12 429:15	130:21 442:22	118:5	React
211:6,19 212:2	433:11 436:18,20	quiet	ran	504:20
216:14,14 217:6,7	438:15 440:14,21	326:20	454:19	reaction
217:7,17 218:13	441:6 448:3	quite	random	121:7 234:13
218:13 219:3,12	465:23 478:22	91:13 92:8 99:5	196:21	327:12,17 329:3
219:21 220:6,9	479:19 482:6	121:9 123:10	range	329:20 477:3
221:12,14,18,23	483:12,14,18,19	162:7 192:23	428:8,10,12 429:2	499:18 541:9
222:3,15,18 226:2	484:6,12,14	259:16 355:17	459:23	567:11 568:18
229:5 234:1,2,23	489:19 492:24	394:14 500:21	ranged	569:3,6 574:5,15
235:3 236:5	496:5 497:11	quotation	248:6	reactions
238:14 241:22	504:8 513:20	80:18,22 96:11,15	rank	300:6,7 327:10
247:10,23 249:18	516:3,6,12 517:24	96:24 97:2,10,24	182:23 183:15	343:19 345:5
253:6,7 256:4,5	522:17 525:14	101:18 102:11	ranking	568:13
256:18 261:22,23	526:6,7 535:8	103:8 105:19	182:13	reactive
261:24 263:1,2	537:16 538:7	113:21 115:1,11	rate	119:14 256:13
264:19 265:1,3,5	540:23 546:17	116:4 119:15	16:5 258:24	257:8 297:9
267:20 268:2	550:13,17,21	quotations	rates	300:10 308:12
273:24 278:5	551:7,13,17,17	75:21 76:4	257:15 258:5,11,16	309:12 363:24
279:2,8,13 280:24	552:7,10 557:2,10	quote	ratio	364:6,11,15,16,22
281:1 284:10,23	557:22 558:16,24	112:3 113:5,17	179:8,13,15 564:16	364:22 365:6,13
285:9,18 287:14	559:8 560:15	114:8	rats	365:13 366:2,6,7
288:8 301:1	561:21,21 565:7,8	quoted	153:15 233:6	367:18 469:24
302:18,20,24	573:12 575:4	114:24 124:12	264:10,22 336:15	475:9 504:14
303:9 310:19	577:13	Quotes	raw	read
315:21 316:18,20	questions	6:23 7:6,8,10,12,15	453:3 455:10,19	25:7,16 38:8,9,11
316:22 317:7,8	12:13 235:6,7	7:17,21 8:10,13	539:20	39:3,10,10,12
318:1,13,19 319:5	339:9,19 396:2	8:16,18,20 9:6,9	Ray	40:13,15 41:5,10
319:7,8 320:10	401:12 412:19	9:12	251:13	41:17,21 42:13,15
323:8 325:5 327:3	422:21 441:21		re-oxidized	45:2,4 47:19 48:8
329:10 330:9	442:20 462:21	R	419:21	48:16,19 49:1,4
331:4 332:17	463:3,5,12 486:5	R	reach	49:10,12,13 55:21
333:22 334:21,22	489:8,10,24	581:1,1	102:23 135:14	55:23 56:1 59:7
334:22 335:18,18	490:12 492:14,19	Radical	287:17 288:6,20	59:13 61:14,16
336:5,23 337:6	497:2,6,7 507:10	118:7	298:10,13 300:16	81:8 84:8 104:16
338:10 349:9	509:24 510:7	radicals	332:21 369:17	104:21 105:4,7
352:21 353:18,23	513:5,15 515:3	119:13 308:15	467:6,9 468:1,1,8	118:20 129:23
354:18 362:8	517:20 518:1	radiolabeled	reached	136:8,12 197:15
365:24 366:21,22	523:24,24 524:13	197:14	219:15 220:11	197:17,23 217:7
367:1 369:1 370:4	556:17 563:4,11	RAFFERTY	288:2,11,23 396:3	234:19 235:24
373:10,16 376:24	563:13 566:14	2:8	397:22 435:3	236:2 238:22
378:4 379:9	571:19 573:12	Railroad	445:7 509:20	243:1 249:9,20
381:13,18 384:2	574:8 578:5 582:8	37:6	reaches	250:19 251:11
385:15 395:7	queues	raise	215:19 262:19	254:4,6 263:1
396:10,15 402:15	167:4	251:1 495:23	499:15 541:7	265:3 276:5 303:1
402:17 411:4	quick	Rakoff-Nahoum	reaching	330:8 375:9 378:5

399:14 407:1	255:7 282:17	556:17 566:15	380:13 383:13,17	105:20 106:19
410:13 411:22,24	314:23 372:23	569:12 574:7	383:20 442:2,5	107:15,22 111:21
412:1,2 413:3	460:9	575:8	463:16,22,24	112:11 113:6,20
415:13 422:18	realm	recalling	464:2,4 485:17,19	114:9 115:12,22
433:9,15 454:23	166:13	172:21 191:4 397:7	485:22 523:14,17	116:24 117:4,11
455:8 459:1	Realtime	receipt	529:3,5,7,9	117:12,15 118:7
471:10,14 498:6	1:17 579:14	580:17	537:12 562:20	118:19,21 119:2,3
499:11 503:2	reason	receive	563:7 578:11	119:11,14,23
525:4,6,13,16	194:12 294:5,8	15:16 37:10 40:21	579:6	123:20 124:6,12
526:19 527:4,12	301:17 336:22	42:2 57:15 58:8	recorded	159:14 167:12
527:14 542:22	368:8 386:17	60:17 61:7 144:7	167:6	206:15 232:19
543:10 546:7,18	426:19 467:8	144:9 393:20	recovery	350:5 379:7
549:2,7 550:7,8	468:22 580:5	received	354:17	388:11,12,15
552:16 576:22	581:6,8,10,12,14	38:2 41:2 42:8 50:2	recruited	398:11 410:10
579:9 580:3 582:5	581:16,18,20,22	55:13,14 61:10	103:22 394:10	411:8,12 412:4
reader	581:24	139:18 144:17	recurrence	426:14 430:23
471:12	reasons	145:18 500:21	194:17	435:14 494:24
readily	496:14,18 518:15	577:19	redone	505:23
502:20	reassert	recognize	257:22	referenced
reading	50:19	220:4	reduce	34:24 63:2 65:13
26:14 27:15 42:19	Rebecca	recognized	470:12 473:12	103:4 335:19
42:21,23 63:9	88:17	225:9 226:15,15,20	reduced	413:20 427:23
80:20 105:14	recall	226:23 227:4,9	472:17	468:20 548:5
128:21 200:4,5	17:24 24:5 25:10	503:24 554:24	reduces	566:6 578:3
230:24 231:1,19	25:13 27:2 29:4	recognizing	366:15	references
231:23 241:3,13	49:22 84:13 85:21	380:12	REES	41:18,19,21 48:7
368:16 375:11	107:20 109:5	recollection	3:12	53:3 54:4 59:13
390:20 397:20	161:13 163:8	21:20 24:4 450:8	refer	59:15,16 61:17,22
404:12 405:2,7	164:2 172:20	471:15 473:19	237:24 248:16	66:2,10 95:11
408:17 411:18	174:16 193:7	494:15 495:8	281:16 336:9	97:7 115:24
423:21,24 435:8	196:17,18 197:1	535:1	344:4 359:7 369:2	118:11 120:24
435:10 470:23	204:20 387:2	record	378:24 403:13	125:15 139:1
472:23 473:1	391:22 392:19	13:2,14 14:7 75:4,7	410:3 474:5 485:2	160:24 161:3
499:1 544:8,11	398:13,14 414:11	124:21 125:1,3,6	538:1,9,16 539:24	350:17 409:2
reads	424:5,9 435:8,10	125:11 126:6	540:24	502:11 503:2
472:10 545:8 546:8	435:12 437:12	163:23 196:2,5,9	reference	referencing
546:17 565:23	454:2,5 477:18	207:24 220:19	7:8 48:10 51:2	122:5 430:10
577:21	478:14,23 484:11	221:1,20 277:18	61:23 62:1 64:14	referral
real	490:4 492:23,24	277:21 280:9	65:1 76:5,18	108:17
463:16	495:2 497:5,7,10	317:14,17,19,19	77:18 78:3 86:21	referred
reality	497:11 507:12,13	317:21,23 318:6,8	93:10,11,17,18	64:20 175:6 250:6
372:20	507:20 510:6,7	318:11,15,24	94:12,13 95:17,18	313:2 389:23
really	512:11 513:20	319:11,15,16,18	95:22 97:8,10,16	524:3 539:18
40:24 152:22	515:9 517:23,24	319:20 336:19	97:21 98:11,16	540:16 563:3,8
163:12,23 165:16	524:12,18 525:8	337:10,12,14,17	99:10,20 100:10	referring
167:7 182:11	530:11,14 537:7	338:2,5,9,17,20	100:10 101:19	35:23 58:12 77:13
202:4 241:23	537:20 539:8	338:23 339:1	102:12 103:14	94:7 105:1 142:13

151:19 210:5 245:14 251:8 276:15 340:9 343:23 344:18,20 359:10,16 373:19 379:3,20 402:11 402:13 430:21 431:11 455:6 470:5 473:22 522:11 578:1	539:19 541:24 567:9 573:3	relationship 21:22 154:3 172:23 200:2,13 201:5,22 219:24 382:1 397:9 532:20	212:6,7 213:16 248:21 488:23	39:18 40:10,14,16 40:17,18,19,21 41:2,18 42:9,13 42:14 44:1,17,22 45:23 46:10,12,14 47:2,11,15,21 48:5,6,11,11,17 48:20,22,22 49:13 51:19 54:5,12 56:3,7 57:4 62:7 62:10,14 63:2,24 64:2,7 65:3,7 66:21,22,24 67:7 67:12,16 69:1,12 69:18 70:1,10,12 70:14,15 71:6,7 72:1,6,10,15,20 72:23 73:8,20,24 74:4 75:11,19,22 76:17 77:3 82:18 82:21 83:16,17,19 84:5,6,10,15,18 84:19,20,21 85:3 85:4,11,12,23 86:1,4 87:9,10,12 87:12,16,23 88:1 88:16,16,20,21,23 89:5,7,9,10 90:6 91:15,17 92:2,16 93:9,16,19 94:10 95:24 96:1,9 99:5 100:8,9,19 101:7 101:17 102:10 103:3 105:7,24 106:15,19,20 107:19 108:6,21 109:12 114:18 115:20 120:2 121:20 125:14 126:15,17 128:8 133:4,18 136:19 136:23 138:24 141:20 148:13 149:5,14 153:11 164:5 168:11,18 170:19,24 171:5,8 171:14,17 189:3,9
refers 41:22 244:4,7 248:11 268:14 572:14	29:21 50:20 145:24 167:14 169:12,17 171:20 276:9 444:13,19 486:19 487:22 496:8 497:2 499:23 511:7,14,15 512:17 540:12 552:21 554:4 555:3 575:5	relationships 342:22 343:7,13,16	remain 239:9	
refining 123:17	regarding	relative 472:19 564:7	remaining 49:16 463:21	
reflect 27:18 221:20 324:23 387:15	regards 47:5,5 401:12 492:9	relatively 564:6,6	remains 401:8 508:19	
reflected 17:12 26:23 384:23	region 371:7	release 104:1 301:22 330:11 365:9	remember 21:17 190:15 482:11 495:13	
reflects 43:6 72:2	Registered 1:16 579:13	released 465:22 467:1,4	reminding 493:12	
refresh 188:9 194:1,6 531:2	regular 575:6	relevancy 134:13 138:7 441:3	remnants 357:8,17	
refuse 34:13	regulators 510:21	relevant 51:14 54:20,24 126:10 134:19 135:5 136:12 203:13 231:4 292:18 394:1,5 470:6 487:21 515:23	Remove 196:1	
regard 17:19 27:22 43:7 45:19 46:24 48:5 59:5 65:11 66:20 66:23 75:10,17 99:19 145:21 170:10 172:7,11 191:8 199:6 273:22 274:6 278:5 291:19 310:13 356:12 384:11 385:13,17 386:3 391:1 398:7 403:14,14 414:2 415:15 416:6 422:4 465:12,13 473:15 480:12 497:8 514:5 517:17 533:2	regulatory 155:6 204:4,4 215:7 316:9 398:6 444:12	reliability 110:10 375:7	remunerated 26:13	
	reiterated 433:21	reliable 110:1 200:21 399:9	repair 355:2	
	relate 137:12 149:6 175:15 295:21 428:19 438:17	reliance 541:21,21	repaired 354:21,22	
	related 124:1 136:13,17,17 165:4 286:8 347:22 349:20 354:10 441:8 517:18	relied 276:2 292:6 374:3 447:18 488:1,17 492:21 494:3 503:3,5 576:4	repeat 23:21 33:5 68:9 69:22 91:23 102:7 142:21 164:13 208:19 234:1,2 256:17 265:4 332:16 372:6 402:16 414:17 433:11 484:14	
	relates 1:8 241:10 476:5 531:5 532:6 555:5	rely 73:18 146:20 147:5 176:2 249:1,13 374:1 399:3 409:2 445:17,20,24 487:19 492:12 505:24 511:6,13 540:9 547:13	repeating 135:3 302:24	
	relation 18:16 20:17 37:13 40:22 44:22 221:14 281:11	relying 77:13 211:7 212:3	rephrase 187:8 516:8	
			rephrased 81:5	
			report 5:17,20,21 16:12 16:14 26:19,23 27:6,9,11,13 34:7 34:11,16,18 35:1 35:6,9,12,20 36:5 36:13,16,18 37:2 37:7,11,24 38:6 38:12,13 39:7,16	

190:12 193:11	487:20 488:1,17	49:10,16,23 51:16	researched	477:20 553:2
197:24 199:14	489:9 500:16,20	89:1,14 137:18	334:8,24	responsibility
204:10,16 205:12	500:24 501:1,3,11	138:3,6,14 139:2	researches	92:20
216:6 225:1,12,16	503:3,11 509:15	139:6,11,15,18,20	356:7	responsible
226:6,17 229:18	511:22 512:2	140:3,4,8,17	reserve	306:21 421:19
229:20 230:4	520:19,22 521:6	204:2,11 229:6	339:4	responsive
231:13 232:7,11	521:17,24 522:1,3	249:7,14 253:3,10	resource	339:8,19
232:20 238:5	522:11,12,23	296:17 378:9	114:21 117:16,17	responsiveness
246:4 247:7,16,17	523:5 524:3,6,10	389:15 520:23	117:23	218:11 281:24
248:4,5,21 249:10	524:11,17 526:19	526:11	resources	341:24 346:23
249:19,21,24	526:20 527:2,5,8	represent	47:20 114:24	358:18
250:1,15,19	527:13,14,16	14:5 53:21 442:15	respect	rest
253:15 266:8,18	528:7,9,18 529:13	representative	505:1	49:8,15
271:7 272:22	529:22 530:5,9,10	411:16	respirable	restate
278:19 280:16	530:13 536:22	represented	239:4	157:1 421:10
281:15 282:8	538:2 539:4,12	21:21	respiratory	restroom
283:2 286:6	540:3 541:1,4,13	representing	103:23 123:24	523:11
292:20 293:14	541:18 543:19	2:21 3:10,19 4:6,10	402:7,19	result
335:6,12 338:13	547:19 550:2	20:1 23:6	respond	44:13,14 173:21
343:18 344:22	552:4,11 569:11	reproduction	334:21	236:17,19 330:21
346:9 350:18	569:16 573:6	579:20	responded	339:10 363:3
358:4 359:7	reported	reproductive	22:3	433:21 477:4
361:20,21,22	146:22 229:1,9,15	30:10 31:7 55:6	response	results
363:10 368:11	231:6,9 253:10	58:15 167:18,19	9:13 22:10 90:9	56:17 202:14 203:6
369:7 372:4 374:2	269:14 295:14	168:1 170:11	233:10 234:14	270:15 287:4
374:10 379:8	299:8 313:23	334:10 335:1	287:1 290:22,24	375:8 377:17
382:13 387:15	343:20 345:7,15	371:18	291:4 293:5 296:8	378:8 410:22
388:2,3,7,24	345:24 346:13	reputable	296:17 308:9	413:7,21 414:4,6
389:4,10,11,13,17	357:23 374:23	46:6 519:5 563:23	311:13 324:23	414:10,22 448:22
393:12,16,21	377:17 413:8	request	325:4,9,12 326:1	496:19 497:23
394:3,7 395:14,20	449:7,13 464:18	12:8 128:2	326:4,7 327:13	498:8 509:11
403:21 408:6	493:5 515:22	requested	328:15 329:17,24	517:2 521:6
410:1 414:9,22	533:1 567:9	18:12,12 149:24	351:5,7 353:1	574:21 576:24
415:3 416:17	reportedly	202:17 579:7	357:11 358:1	577:22
417:3,11,20 420:1	45:21	requests	365:6,22 366:6	retained
420:11,15 421:23	reporter	50:21	368:6 402:1,5	25:21,23 34:19
422:3,5,18,19	1:16,16,17 13:15	require	414:14 423:9	retainer
423:2,22 424:1,16	579:13,14,14,22	465:20	488:6 490:5 497:2	17:22
427:11 429:23	reporting	required	499:18 505:3	retainment
431:23 432:3,9,23	109:21 284:11	229:10	528:12 529:24	30:20,21,23
434:23 437:1,2	285:22 331:9	research	539:16 541:9	retract
444:22 449:3,4	332:20 352:9	8:11 46:23 151:13	551:20 563:3,11	390:19
451:12 452:2	417:3 478:5,5	186:16 311:22	566:13 569:4,8	retrospective
453:7 457:2	reports	391:17 445:6,10	responses	556:21 557:17
469:18 471:10,13	34:23 35:8 36:6,10	445:16,19 446:1	300:8,10 309:3	558:10
472:1 476:17	36:12 39:7,9,17	449:18 492:16	346:24 377:8	return
480:11,12 487:13	39:22 44:11 49:9	535:21 553:19	422:22 425:8	580:15

Reuter 7:10 103:5	reviewed 34:22 35:2,3 36:9	206:5 216:9 445:20 448:21	rigorous 115:10	31:13 218:6 347:7 363:10 368:3
reveal 368:5	38:3,9,21 39:2,7 39:14 40:16 42:15	revisions 72:5	Rio 455:24	382:20,24 383:12 470:20 472:5
review 6:15 15:23 16:6	44:2,9 45:6,18 49:6 52:14 54:11	Rgolomb@golo... 2:16	risk 6:10,16 10:9 30:12	475:6 486:20 504:13 517:12
26:3 36:11,16 37:22 44:24 45:9	54:23 64:1,6,7,23 65:2,5 90:5 93:20	Rheumatoid 347:22 348:2,5	30:14,16 32:10 60:15 73:9 124:9	565:5 569:14
45:15 46:23 47:10 47:21 49:16 59:3	118:14 128:5 135:15,20 136:1,3	RICHARD 2:14	127:12 128:6,9,17 130:8,12,17,24	roles 359:11
59:16 60:13 61:19 65:12 67:12 69:8	136:6,22 138:11 138:19 141:5,12	ridiculous 518:7	131:9 165:14 214:16 230:6,22	Roman 207:3
69:10 84:4 91:15 94:3 97:18 103:13	141:16 144:2 150:15 165:3	right 18:21 21:9 32:6	231:7,11,14 232:22 233:17	room 199:2 258:1 259:10
104:17,23 107:18 109:8,22 116:9,14	196:14 202:11 203:3,24 210:14	51:5,9 52:2 59:9 63:18,22 66:7	234:5 280:5 281:17 283:4,21	401:19
118:10,16,17 119:5 122:12	210:17,19,21 211:2,9,14,21	85:2 95:18 155:9 162:18 215:2	284:11 285:23 331:9,21 348:3,7	ROS 104:1 365:8 469:24
123:12,19 124:7 127:9 129:10	212:4,10,17 213:8 213:14,16,21	221:10 259:1 273:15 287:11	348:13 349:21 351:10,21 352:7	504:20
130:5 131:16 132:24 133:17,24	214:19 232:15 242:20 243:12,13	318:2 321:20 326:12 328:5	352:11 360:15 361:5,12,24	Rossi 11:7
134:12 137:18 138:3,14 139:6	250:13 262:4 273:13 276:4,5	332:11 338:12 339:4 346:8 387:9	362:13 397:15 400:4,20 401:7	Rossman 537:23
143:23 150:8 151:1 169:15	333:3 374:13,23 388:21 389:23	395:18 414:7 424:8 436:10	470:9 472:16,17 472:19 473:16	route 333:8,12,13 335:10
171:6,14,17 184:11 196:20	395:3,4 396:1,20 399:6 412:2	444:9 456:4 483:2 487:14 497:14	474:1 475:17 476:5 508:10,18	335:20 343:2 428:2
198:2 203:18 205:14 206:3	413:15 423:15 435:11 438:21	509:4 532:10 545:3 558:24	547:6 556:15 558:3,11,20 559:2	routes 123:3,9 425:21
208:4 209:14,17 209:20,22 211:16	454:14,16 501:1 503:3 523:1 526:8	572:13 575:3	559:12 564:7,20 565:16	458:3 462:16
212:22 213:4,12 215:11 216:5	528:8 531:14,20 531:23 533:18,20	right-hand 564:1	risks 124:1 509:11	Royston 4:11
228:5 232:12 273:6,10 275:10	535:6 539:3 558:6	Rigler 5:19 36:18 38:6	Road 2:19	rule 5:17,21 83:18
275:12 333:1 356:1 375:10	reviewer 98:9	248:22 249:8,14 250:2,22 251:9	Robert 11:13 512:1,5	483:7,10,23
388:10,18 390:9 392:21 413:6,11	reviewing 38:5 42:19,23	446:24 447:3 521:23	548:21 549:15	rules 482:8
413:13 414:4,6 415:6 417:7 438:2	48:11 54:21 66:17 109:5 145:23	Rigler's 493:14 520:22	Rochester 176:21	run 449:19
455:7 456:11 487:20 492:6	146:16 169:9 210:1 389:3	521:16	Rohl 9:19 248:7,15	rural 459:7 460:15
511:6,13 519:4 521:23 533:6	reviews 24:21 118:22 119:2	rigor 38:23 67:13,23	405:8,12 406:3,4 406:16 407:17,19	<hr/> S <hr/>
534:6,11,13	133:12 139:13 150:1,4,13 174:21	68:21 70:16 435:24 445:9	407:21,22	S 3:7 5:11 6:2 7:2 8:2
		449:22	role	9:2 10:2 11:2
				S-transferase 381:11
				Saad

10:11	211:9 244:17	443:18	scrutinize	237:22 243:17
Saed	317:10 331:12,19	scientific	38:10	245:1 278:18
6:11 55:7 58:1,17	343:17 353:12	67:10 68:4,14	scrutiny	280:3 281:4 284:4
61:2,23 297:2	369:5,13,14 370:8	86:11 105:4 112:5	67:13,23 68:21	332:3,4,7,11,12
374:2,4,22 375:2	370:15 380:17	113:16 114:23	69:11 137:6	332:14 339:22
376:13 379:7	435:6 460:13	115:3 117:10	214:22 436:1	344:24 346:6
381:21 382:8	462:11 559:1	126:22 127:10	search	359:10,12,15,17
395:3 493:4	says	129:10 130:5	41:24 42:7 43:6	363:10,12,13,17
538:12 561:14,15	79:5 80:24 112:1,9	140:23 141:11	48:2 54:22 131:19	396:8,11,16
575:4,18 577:8	113:1 129:9,12	152:19 153:3	131:21 132:20	399:23,24 403:22
Saed's	130:4 211:13	154:7 157:10,19	133:24 136:10,16	421:24 426:3
58:4 74:1 374:13	212:17 293:3	160:15 172:14	145:9 148:23	458:16 473:18,21
377:18,23 378:2,5	300:19 302:13,22	203:8 204:15	197:4 198:2,7	502:2 506:13
381:3 493:11	303:3,4 400:2,14	205:2,6 213:20	425:4,18 553:23	524:4 527:18
539:6	401:5 404:2,7	215:24 216:9,19	searches	528:7 529:12
safe	405:3 406:17	217:10 218:2,14	133:2,5,9 134:17	530:12 546:5
316:8,10 510:9	423:2,6 432:19	225:7 226:18	135:3,3,4,6	567:8 568:23
safety	445:4 454:19	228:5 249:2	202:15 203:7	574:9 576:21
8:13 392:14 512:14	455:18 456:8	253:20 255:1	searching	sections
SALES	458:1 459:2,20	266:15 347:13	20:8 27:15 199:1	389:10
1:6	461:6,11,14,21,22	385:12,16 398:6	413:5,14	see
Salnikow	462:6 512:19	444:18 445:8,18	second	38:13 44:6,11
122:15	564:19 567:8	447:10 448:4	79:3,13 199:22	48:14,15 50:12
salt	scar	449:22 450:2	208:21 267:20	51:20 60:6 64:16
536:24	329:22	456:16 489:14	326:18 335:9	65:14 69:6 80:19
salts	scarf	492:7,16 531:12	336:10 410:2,5	80:21 81:3 85:9
322:13	124:23	531:15 575:22	429:23 430:14,15	86:3 87:9 88:20
sample	scarring	scientist	449:12 452:10,13	89:11,12 93:12,13
410:7	330:13,16,20	172:1 445:7	454:18 458:19	93:23 94:6 103:5
samples	school	scientists	472:3 474:8	103:10 107:21
37:6 248:9 269:13	14:11,15 30:4	76:24 82:1 164:1	476:17 480:24	108:3 116:4
269:13 272:24	177:4,17 227:19	167:22 172:9,11	497:17 528:6	118:21 120:2,5,17
275:20 446:19,22	514:3	437:16,19 446:9	529:11 544:23	122:4,5,10 126:20
493:15 495:7	schools	519:5	545:6,23 564:20	128:20,20 129:19
498:10 521:7	459:21	scope	570:3,4	129:21 131:3,17
539:20	science	66:24	second-to-last	135:3 141:23
Saturday	20:10 22:4,5,6,12	scratch	64:12 333:6 411:7	199:20 200:3,5
37:19 38:2	58:15 68:16	333:23 485:7	second-to-the-last	202:19 208:16
saw	138:11 148:24	screening	496:11	209:4 211:18
264:15 358:18	149:24 150:19	6:12 57:14,16 59:6	secondly	230:8,23 237:16
394:24 500:22	199:12 200:22	59:22 60:22 61:10	573:11	237:23 248:13,17
522:17	203:14 212:6	63:20 205:19	section	275:1,6 290:6
saying	214:7,9 215:9,16	391:24 392:14	74:7 89:12 91:2,11	311:8 317:6 332:7
31:6 78:1 97:11	220:3 444:4 446:8	500:11 542:1	91:18 92:3,3	333:9 339:14
108:4 110:11	446:10,11,12	547:15 572:4	126:18 128:14	341:22 347:10
147:18,20 158:2	sciences	screenings	129:6 130:3 144:1	357:7 359:9,21
158:24 196:17	15:21 55:6 167:19	542:17	199:17 208:12,22	363:11 368:15

372:7 386:18 387:17,18 396:14 399:23 404:11 405:1,7 408:16 410:4,9,18,20 411:2,11,12,14 412:8 414:8 419:2 431:20,21 436:6 436:21,23 445:12 446:20 449:11 455:18,21 456:7 456:18 458:20 459:1 469:22 470:22 472:3,12 472:22,24 477:11 479:22 480:16,16 481:10,13 485:1,3 485:10 487:16 496:13,15 500:13 501:24 506:12 507:21,21,24 509:4 511:23 518:4 521:2,20 525:10,24 530:10 531:2 546:6 565:10 572:10,17 573:15,24 574:1,7 574:17 575:16 577:2 seeing 58:19 345:24 389:14 470:24 518:21 seen 53:18 95:17 118:18 171:7 283:13 342:15 345:20,23 351:1,5 377:12 393:2,10 403:1 477:21 479:13 555:16 562:1 577:8 select 139:5 276:3 selected 139:20 140:3,4 selecting	140:17 143:10 390:7 Selikoff 258:20 semester 33:21 send 24:16 140:5 143:11 186:18 sense 413:13 518:7 sensitivities 456:16 sent 276:6 sentence 80:8 111:18 123:5 123:6,14,21 202:24 209:5,13 223:8 231:2 410:5 411:13,15 446:20 449:12 454:23 458:7 459:19 461:7 471:1 472:13 474:4 496:12 498:6 499:12 508:2,4,15 508:21 509:5 521:3 528:6,17 529:11,17 530:3 538:14 541:13,18 546:17,18,21,22 547:11 550:11,22 564:19,24 565:9 565:20,22,23 566:4,9 572:16 574:3,19 577:1,21 sentences 75:19 83:6 85:10 85:12 87:11 89:17 95:4 99:15 100:15 103:7,19 106:16 109:9,11 115:24 454:24 499:2 508:24 527:17 528:4 566:6 separate	14:20 271:18 350:22,24 September 388:13,17,19 389:2 454:20,20 sequence 80:17,21 96:9 serous 191:17,18 192:9,19 serpentine 110:15 178:16 179:1,6 180:11 serve 15:22 20:3,16 21:12 23:8,18 24:1,17 196:16 197:5 198:3 served 50:20 435:22 444:6 services 1:20 13:4 16:1 455:3 serving 18:9 20:11 set 26:18 56:6 71:20 72:10,19 73:19 148:13 149:5 170:18,23 Seth 116:9 sets 31:18 setting 18:4 159:11 424:11 424:13 seven 337:20 481:21,23 482:2,9 SEYFARTH 4:3 shape 242:7 244:5 share 463:6 SHAW 4:3	Shawn 6:23 83:20 84:1 shed 353:3 sheet 580:7,9,12,15 582:12 Sheraton 1:14 SHKOLNIK 2:18 SHOOK 3:2 short 75:5 125:4 251:19 277:19 338:21 383:18 442:3 485:20 523:15 573:1 Shorthand 1:16 579:13 show 40:2,8 88:8 93:1 102:21 115:17 119:22 121:18 153:13 223:10 233:16 234:5,15 237:20 275:19 279:19 284:21 286:6 288:16 301:3 373:19 388:24 441:16 450:21 453:23 469:11 565:4 566:17 showed 140:24 232:3,17 234:20 381:7 429:19 549:20 550:18 551:8 567:15 Shower 73:1,2 90:4,5 487:24,24 488:5,5 493:18,18 521:1,1 showing 106:4 158:19	234:11 236:1 275:7,15,22,24 340:2 345:10 379:11 381:3 426:12 471:20 477:13 479:7 544:6 550:24 558:2,11 559:11 shown 211:4,24 213:7 224:1 236:24 237:4 258:8,17,20 291:20 301:5 307:20 313:8,18 324:19 351:3 362:10,20 364:18 366:19 367:5,21 371:23 377:17 378:8 384:18 388:4 416:19 434:21 551:3,23 shows 72:23 73:8 213:8 220:19 234:10 247:8 291:4 329:16 345:21 366:5 376:12 441:12 449:22 552:1 571:2 Shukla 11:12 297:5 305:14 310:6 474:6,11,14 480:13,15 484:20 484:23 515:3,5,14 515:20 517:3 561:13,15 sic 127:18 side 89:1,1 389:15,15 456:2,3,4 463:11 508:13 sign 69:18,24 145:22 146:3,15 579:9 580:8 signed
---	---	---	--	---

69:20 70:2,14 146:18 significance 476:4 significant 207:7 significantly 485:10 signing 47:1 70:9 580:10 silence 528:21,24 silicates 110:19 silicone 110:23 siloed 238:18 silos 55:1 238:20 239:10 SILVER 3:17 494:8 similar 44:8 99:14,14 152:4 289:3 296:3 296:3 305:16 426:16 437:15,18 513:2 518:15 similarly 310:13,18 Simone 7:10 103:4 simply 69:4,6 91:2 153:1 161:10 334:22 365:12 436:20 484:2 single 52:9,15 93:18 144:18 231:12 253:19 256:24 257:7 288:11 313:6 368:12 369:2,3,6,8,10,17 370:1,9,17 379:24 380:5,22 381:4,8 381:14 382:18	383:6 439:5,16 440:9,21 441:4,6 sir 20:2,6 24:9,15 34:21 35:10 36:14 37:3,9 41:7,23 45:11,13 48:9,18 48:24 49:3 50:12 51:24 56:4 57:3 58:2 59:17 60:5 63:7,24 64:17 65:23 121:24 126:16,20 128:11 128:22 129:8,24 133:1 162:16 169:15,20 172:18 173:11 193:14 199:10,15 203:21 259:2 278:4 347:8 393:13 407:19 408:7 410:15 445:2,12 446:16 451:5 455:17,21 457:24 458:18 474:7 479:22 545:2 sit 15:13 155:9 164:22 169:10 site 103:22 298:14,22 300:1 301:21 314:6,10 320:22 320:22 322:5 330:17 368:14 459:13,15 sites 314:14 476:4 sits 111:5 sitting 16:6,8 51:5 161:1 161:10 162:20 165:11 197:1 227:11 258:1 259:10 346:12 380:12 391:14,21	392:11 395:21 424:8 situation 462:12,13 six 103:6 108:14 size 99:12 182:2 198:15 238:1,3,10,22,22 239:8,11,15,21 240:10,10,11,18 240:21,23 241:11 241:16 242:1,4,11 242:20,23 243:2,6 243:11 305:7,16 305:22 323:23 324:2,16 427:17 427:19,22,24 428:7,10,17,23 466:14 467:8,12 468:19 sizes 426:17 428:20 Sjosten 336:11 SKADDEN 3:7 sketch 251:12,13 skin 121:7 333:18,19,20 333:21,24 334:2,6 skip 60:19 125:23 Skipped 8:9 slow 130:20 slowly 442:23 small 265:21 290:6 296:7 smaller 241:4 467:23 468:2 smiling 518:22 Smith	524:16 Smith-Bindman 7:6 88:17 90:13,15 90:24 524:17 530:9,17 Smith-Bindman's 92:16 524:11 smokeless 170:2 SNPs 380:23 soap 341:8 soaps 341:8,10 societies 555:14 society 225:9,13,17 226:5 226:9,9,10,14,16 226:20 227:1,2,3 555:9 soil 419:18 solely 24:22 87:24 247:23 448:21 solid 427:16 soluble 124:2 310:22 322:7 322:9 465:3,6 466:5,7,24 536:14 sorry 23:19 28:18 35:10 38:7 39:11 42:4 44:18 45:12 54:4 59:6,11 60:24 61:4 64:17 76:10 76:12 79:9,12 83:12 86:22 89:4 102:1 110:6 117:2 121:24 127:3 128:11,22 132:21 141:9 143:15 144:9 156:5 158:8 169:3 170:21	173:19 174:10 190:14 191:3,6 194:1 195:13,14 197:21 204:18 207:2,22 211:18 225:11 230:10,13 231:20 232:9 233:8 234:1,8,9 237:11 238:6 245:7,15 247:1 250:8 273:9 274:16 280:6 289:19 304:13 306:9,18,19 307:9 313:3 321:14 328:12 332:3,14 333:6 347:4 352:15 353:22 361:19 367:13 381:19 388:13 392:2 401:3 404:13 405:5 406:1 407:2 416:6 418:5,21 421:23 427:9 433:10 436:19 439:12 450:16 452:8,19 465:6,6 466:10 469:15 477:9 480:2,14,22 485:7 495:19 508:12,16 512:3 516:6 523:3 524:17 525:8 526:15,23 527:15 528:21 532:15 534:2 535:10 538:8 545:4,6,21 545:21 550:12 557:9 560:12 561:9,18,18 568:20 570:8,10 570:15 572:5 577:14 sort 503:24 sought 398:7
--	---	---	--	---

sound 200:21 446:10	190:8,11,22 209:13 216:14	spoken 23:10 29:6,19	33:21 253:12 497:18	394:21 432:9 433:14 434:12
source 57:21 79:7,20 80:10 82:15 88:2 91:19 92:5,10,15 96:10 97:7 100:19 103:9 108:8 113:4 254:22 261:4,8,15 399:9 443:19 450:3 563:19	217:8 221:15 255:18 261:8 264:19 265:1 279:19 294:6 301:1 302:19,20 303:9 313:14 344:1,19,21 362:8 453:20,20,21 454:5 462:10 478:23 479:20 488:16 497:11 510:1 544:1 545:8 546:8 559:8	77:23 171:18 172:6 356:11 530:16 555:3,6,17	starts 8:11 51:19 257:11 421:12 457:20 458:21	492:6 499:21 540:1 554:1 573:5
sources 15:10 25:3 101:14 261:7 450:20 459:12 494:6		sporadic 15:18	state 14:6 50:22 200:18 206:21 244:24 252:24 301:16 324:20 477:1 564:4 580:5	states 1:1 119:8 120:9 431:2,17 496:23 498:14 540:20 543:22
South 2:9 4:8	specifically 62:2 137:6 163:5	spot 252:4	stated 76:21 83:13,14 86:7 155:7 168:15 169:2 200:17 211:22 212:18 214:8 252:8 296:4 307:11 336:8 346:19 455:15 493:19 512:19 530:7 533:18	stating 135:24 223:9 382:13 430:17
space 327:20 580:6	169:14 172:13 185:23 189:17	stack 387:8 495:15 569:23	statement 86:19,20 89:22 107:6,8 212:16 215:5,6 222:7 322:17 397:2,17 397:19 400:7 401:10,18 404:1 423:6 427:3 431:1 431:23 432:7,14 432:20 433:1,2,6 433:8,8,15 471:3 471:5,13 491:24 504:22 509:13 539:19 541:1,4 542:19 543:9,23 544:9 545:7,13,17 545:20 546:7,13 564:10 568:16 569:10 570:18 571:5 572:11	station 449:7,13 450:9,11
speak 113:13 178:13 205:22,23 225:6 226:4,8,13 227:13 229:17,21,22	211:5 212:1 228:9 274:1 286:3 303:24 314:1,2 394:2 451:2 468:16 505:2 522:17 566:23	stages 326:16		stations 449:19
speaking 30:10 225:13,16 343:8		stall 337:21		statistically 207:7
speaks 206:4 227:15 248:4	specifics 495:1	stand 70:19 75:2 95:7 113:24 195:24 197:22 217:19 294:23 527:15 578:8		stay 34:14
spec 292:12 465:5	speculation 87:20	standard 68:2,13 69:14 309:4		stays 74:3
speciated 419:6	speculative 151:8	standards 69:1 282:16 385:3 468:19		Steering 2:21
species 119:14 257:9 297:10 300:11 308:13 309:13 363:24 364:6,11 364:15,16,22,23 365:7,13,14 366:2 366:7,7,8 367:18 464:11,13 469:24 475:10 504:14	speed 442:22	standing 97:14 118:15		stem 194:15
specific 25:13 108:14 143:7 143:11 171:2 174:23 189:3,9	speeding 442:24	stands 101:11,14		stenographic 13:14 280:9 562:20
	spell 19:15,18	start 30:15 254:1 256:14 263:11,15 265:7 265:10,18 266:4,8 266:11 291:1 296:9 314:24 321:15 369:14 370:24 371:10 472:12 493:3 501:4		Step 217:1,2
	spend 27:24 38:4 389:2	started 33:11,12 251:17		step-by-step 224:10
	spent 17:8 26:22 27:8,13 27:18 389:7	starting		steps 409:5
	sperm 95:3		statement's 573:4	Stipulations 12:11
	spoke 172:10		statements 95:9 99:14 117:17 121:21 224:6	stop 442:22
				stories 449:18
				stove 173:2,3
				Street 2:4,9,14 4:4
				stress 297:3 307:22 364:17 367:19

369:15 371:21	studies	438:3,9,21 458:21	437:11 446:4	385:6 423:24
375:21 421:20	121:3 137:9,9,10	459:3 464:10,14	451:7 454:19	582:11
470:13 471:7	138:9 140:24	464:16 465:2	455:1,5 456:23	substances
486:20,23 487:6	145:7,8 189:13	466:16,18 467:2	464:23 469:12	262:8
504:20,21	190:17,18,21	469:2,5 475:15,18	472:4 474:6,10,14	substantiate
strike	202:13,20,21	476:10 477:13	476:3,8 477:18	434:9
20:14 21:1 23:14	203:6 206:6,7,8	478:5 479:7	478:1,1 480:13,15	substantive
32:11 36:10 43:2	207:4 225:2 230:5	492:20 503:4,21	484:20 508:7	215:20
44:24 62:3,18,18	230:21 231:5	505:23 517:21	509:14 515:15,20	subtype
66:22 81:15 82:8	232:2,2,17,18,21	518:11 520:12,15	515:22 517:3	193:13 194:24
132:17 176:3	235:24 236:2	531:12,15 539:3	518:3,19 519:23	subtypes
190:9 205:2	260:8 269:1 277:2	556:14,19,22	534:3 557:4	191:9,23 193:16
214:14 243:15,19	278:22 279:3,6,9	557:14,15,18,21	559:20,23,23	194:10
272:8 299:10	279:14,19,21,24	557:24 558:2,10	560:2 561:13	sufficient
302:4 336:18	280:2,11 281:1,14	558:19 559:4,11	562:17 563:2,9	260:19 290:17
352:22 353:6	282:3 283:1,17,19	560:6,16,20,21,23	566:17 567:15,17	440:9,22
393:18 396:10	284:10,21 285:22	560:24 561:4,7,10	study's	suggest
399:1 414:20	286:5,7 288:16,17	561:11,14,16,22	473:24 572:24	299:21 482:22
417:24 426:24	291:10,15,19,23	562:3,5,9,11	style	suggested
439:11 474:12	292:5 293:13	564:22 565:4	167:1,2	123:24 454:7
475:2 493:2 501:4	294:6,15 295:3,14	568:14 572:12,17	subcutaneous	suggestion
528:5 543:17	297:1,16,20,24	574:21 575:1,5	334:6	338:3,6
553:10	299:2 301:2 304:8	577:1,4,6,9,22,24	subject	Suite
strong	305:12 310:2	study	122:19 167:15	2:10,14,19 3:13 4:8
288:4 420:12	332:20 334:7,23	154:4,14,20,22,23	302:20 580:10	summary
strongly	339:24 344:4	155:1,4 197:8	subjective	63:7 564:7
514:24	345:9,13,23 346:7	214:6 233:16	225:1	Sunday
structural	346:20 351:15,19	234:4,10,19	submission	38:3
110:23	351:22,24 352:3,8	252:22 264:20	522:3	Sunderman
structure	361:18,22 363:7	285:12 288:18,19	submit	122:14
268:15 324:4	366:10,11 367:21	291:3 296:16	500:16	Sundre
structures	368:2,3,5,20	297:5 299:7	submitted	289:24
44:7	372:24 373:1,18	305:14 310:6	171:4,14,16 213:2	superficial
student	374:1,6 375:22	313:6 332:24	213:3,10,11 498:9	22:14,19 199:1
43:8,9,10 98:13,15	376:5,13 377:2,11	335:3 336:14	500:19	409:12
99:6 132:7,8	377:14,18 378:9	342:19 346:13,21	Subscribed	superoxide
students	378:12,13,15	346:21 347:1	582:19	365:4
6:21 30:8,13 31:23	379:1,2,3,6,11	351:9 360:13	subsection	supervision
32:4,14,18 78:22	380:5,14,16	361:4 362:10,20	487:16	579:22
79:2,18 80:7,11	381:22 382:8	371:22 372:12	subsequently	supplement
81:9,17,19 82:16	396:3 403:11	373:17 375:11,13	362:5	36:15 48:20 60:1
131:24 132:1	416:2,8,12,14	375:15 376:9,20	substance	73:24 201:15
134:11 443:13	417:3,11,19	377:16 378:8	149:17 150:9,12	247:8 249:9,21
studied	422:10 423:16,17	399:13 401:19	200:12 224:13	277:3 522:5,6,7
184:20 333:2	426:7,14,18 429:1	402:12,14 416:3	262:17 342:23	supplemental
428:17 532:23	429:6 432:9	435:15,19,21	343:6,11 366:14	37:1 38:12 59:18
533:4,13 543:16	433:22 437:24	436:2,7,22 437:1	368:20 369:6	59:20 374:15

522:10,23 supplementary 57:5 supplemented 74:2 supplied 53:2 139:19 140:20 143:4 suppliers 455:24 498:9 supplies 461:17 supply 167:8 461:20 494:6 support 12:2 320:6 397:13 432:10 443:15 501:12 502:3 548:3 supported 62:15 111:22 supporting 6:9 156:9 547:21 supports 441:11 supposed 70:18 71:7,19 181:9 263:7 supposedly 413:7 sure 23:22 24:20 29:19 33:4,7 45:6 46:19 59:24 68:12 69:24 70:5 86:14 92:1 102:9 121:9 123:10 138:2 142:23 165:16 192:14 234:3 242:15 247:19,21 249:17 251:2 252:10 263:23 267:12,18 272:1 279:12 347:2 355:17,20,22,23 356:3 366:20 387:5 388:20	397:21 413:2 414:18 440:14 452:10 465:23 469:6 482:20 537:24 538:23 551:19 560:22 surface 181:24 surprising 488:24 surveillance 359:4 survey 453:3 454:3 455:4 455:9 497:18 survivability 375:20 susceptibilities 255:9 susceptibility 266:3 370:2 susceptible 262:19 371:20 suspect 514:23 suspected 513:1 518:23 suspicion 519:18 sword 327:5 sworn 13:20 579:5 582:19 symptomology 331:16 symptoms 353:19 synonymous 353:2 system 33:17 165:23 262:19 325:20 326:12,17,21 347:7 359:12 366:6 402:7,19 systematic 6:14 60:13 136:5	206:3 228:4 232:12 356:1 systemic 205:14 systemically 303:17 304:23 306:10 312:11 323:21 systems 371:19 <hr/> T <hr/> T 4:3 5:11 6:2 7:2 8:2 9:2 10:2 11:2 581:1 T-cell 326:6 table 31:12 287:5 tables 38:24 42:13 Taher 6:17 59:24 60:16 61:8,19 62:3,5 206:4 208:4,23 210:8,13,15 415:12 478:1 569:20 571:22 Taher's 63:21 205:14 take 18:2 74:8 76:15 78:2 85:15 94:2 97:7 106:15 113:18 118:17 122:8 195:22 211:11 225:1 265:23,24 277:14 282:18 358:6 386:12 421:9 456:24 487:13 518:9 523:10 537:9,12 taken 1:13 43:22 76:6 79:1 87:24 93:16	100:9 105:9 109:10 121:21 125:13,16 172:17 178:11 199:7 235:20 494:5 526:10 546:21 takes 265:23,24 296:6 talc 3:20 6:16 8:14 9:15 9:23 11:15,18 18:3 22:12,24 24:24 25:4,11 29:12 30:14,16 31:4,13,23 32:5 60:15 62:17 73:6 73:11 126:24 128:7,10 134:1 141:13 148:14 149:7 150:16 152:8,14,21 153:5 153:13,20 154:9 155:7,19 156:16 156:24 157:4 159:7,10 163:18 164:9,18,20 166:19 167:13,23 171:20 185:4,12 185:13 187:19 189:14,14,15 196:23 197:7 198:16 205:9,24 206:1 207:9 208:24 216:15,16 217:1,20 218:9,18 219:22,23 221:15 222:22 223:10,14 226:21 227:5,10 230:7 231:8,15 232:22 233:8,17 234:6,20 236:1,6 236:11,12,22,24 237:17,22 238:1 238:10 239:15,16 240:20,21,23 243:6,18,21,22,23 244:1,2,4,6,12,12	244:16 245:1,11 245:16,21,23 246:7,12,17,19,23 247:4,13 248:2,8 248:20 250:9,10 256:20,24 257:2 263:16,20 264:8 265:8 266:11,19 267:1,2,8,11 268:5,6,7,12,14 268:16,19,20,22 269:2,3,5,10,16 269:19 270:2,22 271:19 273:3 274:7 275:21 277:6 284:7 288:2 288:19 291:15,19 295:15 298:10,12 298:12,24 299:3 302:6,13 303:4 304:3 305:3 307:19 308:2 309:1,23 310:1,12 312:20 332:5,21 333:12,17,19,24 334:1 336:16 339:22 340:2,3,8 340:15,19,24 341:7,7,8,10 343:19 344:5,8,11 344:15 345:7,11 345:16 346:1,15 350:2 351:5 356:15 357:24 358:6 362:22 366:9 367:23,24 370:9 371:3,4,24 372:16 373:21 376:16 377:19 378:10,16 379:13 380:22 381:20 382:5 383:2,9 384:11,18 385:13 393:5 394:22 396:9,12 397:2,10 397:14 398:8 400:3,19 401:6
--	--	--	---	---

408:12,20 409:7,9 409:14 414:2,23 416:6 419:12 425:22 426:5,12 426:19 428:1,11 429:10 431:3,18 432:12,16 433:23 438:3,9,10 439:3 439:14,16 440:9 440:22 441:6 444:14,19 447:5 450:21 452:15 453:4,5 455:11,12 455:20 465:12,17 465:21 466:1,2,5 466:6,11,12 468:17 470:4 472:5 477:14 478:6,23 479:3,4 479:8,20 480:17 481:5 487:4 490:2 491:6,11 494:5 496:20 498:12 499:5,14 504:15 505:1,18 506:23 507:3 508:7,9,18 509:10 510:3 511:14,15 512:9 513:12 515:18 516:16,21 519:7 519:13,15,16,19 520:6 531:5,8,15 532:3,6,12,17,20 533:2,7,14 538:23 539:21 541:6 544:2 545:10 546:9 548:7,14,18 552:21 553:7 554:4 559:2,2 565:24 566:18 567:10 570:19 575:5 talc-based 231:9 512:18 513:12 talc-containing 496:21 497:24	540:19 Talc-induced 538:5 talcs 451:14,16 476:20 talcum 1:5 6:10 10:6 13:9 21:23 127:14 128:19 130:9,13 130:19 131:2,10 157:12,21 172:3 189:4,13 196:23 201:7,8 206:12,16 208:13 209:8 210:2 216:2,21 217:14 221:2 222:9 223:14 243:12 265:14,22 265:22 270:9 271:3 275:8 276:23 340:9 344:13 345:1 346:22 352:10 363:4 366:14 370:20 377:5 382:2 397:10 403:15,17 423:11 428:11 438:23 439:1 440:16 441:6 477:2 488:8 493:15,21,24 494:7 499:24 513:6,8 514:6 515:6,16,19 517:5 520:23 528:13 538:24 549:20 550:18 551:2,8 552:1 559:5 561:19 575:21 talcum-based 512:21 Talcums 9:18 talk 32:9,9 122:5 166:9 166:10,10 175:19 202:7 218:6	236:14 253:12 274:10 280:12 281:9 289:6 298:4 337:2 359:22 397:6 417:5,8 442:23 446:18 528:22 talked 24:7 34:9 63:14 64:4,24 73:20 166:11 196:10 197:13 265:9 345:6 384:9 452:7 462:15 502:7 529:19 554:17 talking 21:8,9,13 71:5 99:18 110:11 142:18 174:5 187:15 202:21 221:7 250:16 259:12 263:4 265:14,15,16 266:5,7 286:13 291:11,14 293:16 296:22,24 297:4 297:13 298:4 317:13 334:4,5 335:7 339:21 344:21,24 345:1 354:8,9 357:6 370:19 397:3,5 398:18 426:23 432:4 437:19,21 455:2 462:9,10 467:15 490:17 526:21 539:9 557:14 talks 136:23 137:2 223:23 558:7 target 263:8,11,14 265:6 288:6 298:22 300:1 301:12 312:13 320:22 322:5 330:14	356:17 370:5 task 520:4 taught 33:18 34:1,2 165:20 166:5 teach 186:2 teaching 159:12,13 165:19 167:1,2,4 technical 251:22 technically 334:15 TECHNICIAN 4:15 techniques 375:19 telephone 19:4,5 television 449:7,13,19 450:8 450:11 tell 15:15 17:1 20:21 21:14 24:11 43:18 52:14 55:12 85:22 120:7 124:8 128:11 182:13 188:7,24 191:16 228:17 242:17 265:20 272:13 361:11 372:5 379:1 380:9 391:13 435:13 460:9 475:20 483:11 502:16 542:23 543:23 568:20 telling 97:4 219:21 222:11 299:17 TEM 252:2,15,16,18,19 252:20 446:18,21 456:6	temporal 358:15 temporality 327:14 328:4 ten 195:20 258:3 293:4 358:13,17,19 tenfold 459:9 tenure 14:16 term 99:7 108:14 terms 21:1 41:24 42:7 44:3,12 134:12 138:7 151:17 159:22 182:10,12 183:10 194:8,20 239:5 247:16 251:15 252:5 274:14 286:20 288:1 301:3 309:11 312:8,10 326:8,9 327:11,13 328:4 331:13,13 336:10 353:24 369:24 396:6 414:14 432:3 433:18 434:4,9 438:22 485:3 486:16 490:11 542:14,15 548:10 551:19,22 Terri 14:8 terribly 528:20 test 191:5 253:2 270:15 273:7 413:6,21 414:10 494:21 521:6 tested 264:11 273:1 293:23 295:19 360:2 410:7 495:7
---	---	---	--	---

539:5 testified 13:21 187:16 370:17 390:14 410:21 411:17,20 489:9 532:4 557:3 testify 28:1 157:18 266:24 418:11 447:5 512:17 testifying 71:1 148:17 173:14 173:18 174:1,11 175:2 564:15 testimony 5:4 16:7,9 51:15 67:1 70:18 71:8 71:16 75:18 78:4 87:22 90:14,23 91:9,16 92:1 95:20 104:9 105:6 113:20 114:8 115:6 126:7 243:19 248:10 300:23 333:16 353:5,7 389:24 408:19 411:9,10 429:9 534:10 550:2 552:4,20,23 557:11 579:6 testing 86:13 134:16,23 147:6 148:4,5,7 151:16 186:8,12 202:14 203:6 273:11,20 275:15 276:3,9 292:15 374:22 375:7 410:16 413:12,16 414:1,23 446:19 446:21 447:22 448:1 493:4,15 495:11 496:8 497:22 515:15 519:1 538:16 539:20 540:13 tests	135:2 146:20 147:3 147:6 148:11 253:8 274:3,4 413:20 414:5 561:7 Texas 3:13 text 38:12,22 59:14 546:21 thank 17:6 32:24 35:22 36:3 59:12 75:13 85:7 102:2,4 124:15 131:17 160:1 162:19 253:16 278:21 333:10 376:3 419:3 441:23 442:13 477:11 481:20 484:9 485:15 493:11 507:8 517:17 523:8 524:7 526:4 526:4 539:17 544:21 546:6 569:24 570:1 571:10 572:8 573:17 Thanks 495:16 theory 24:12,12 thereto 121:23 thesis 252:17 thing 78:1 90:12 91:2 114:17 149:13 150:7,24 199:9 310:3,10 325:20 326:11 357:7 363:2 519:15 522:4 553:15 things 86:7 94:17 103:15	110:12 136:16 169:24 185:11 194:14 238:19 337:22 344:14 451:3 569:17 think 24:20 42:8 43:5 65:15 66:10 69:9 73:13 74:12 77:15 82:5 84:22,23 85:5 100:21 111:3 150:20 155:24 156:19 164:11,12 168:14 182:12 183:11 185:12 187:10,13 192:21 194:5 195:21 206:5,7 220:18 221:19 223:12,13 224:20 229:7 238:13 241:22 256:1,2,3 267:6 268:18 272:2,7 277:4 287:4,10 288:17 310:18 312:6 337:20 338:9 370:16 381:1,10 386:15 386:16 387:11 400:10 401:11 435:23 436:1 437:6 441:3 446:10 449:22 477:19 482:12 485:13 487:13 489:9 490:4 515:11 518:6 522:9,12,20 527:6 546:20 551:14,16 570:12 571:11,20 571:24 573:14 thinking 56:22 57:2 367:14 third 131:14 400:2 404:1 404:3,15,16,20 411:13 420:1	421:11 565:24 thirty 580:16 Thomas 2:8 4:3 49:13 thought 54:20 86:23 101:2 107:3 138:21 192:8 193:24 241:13 247:15 281:20 349:8 390:22 401:17 416:13 435:13 490:16,16 516:9 561:19 thoughts 88:3 95:13 194:6 threatening 317:10,16 three 38:7 179:10 248:9 280:18 281:11 289:1 316:15 326:15,16 358:12 443:13 457:17 482:14 528:5 559:13 561:24 three-quarters 64:10 390:1,2 threshold 238:9 239:14 253:23 255:7 263:22 265:12 283:2 throw 337:19 throwing 102:24 throws 187:18 Thumb 6:7 time 13:6 17:9,15 20:4 21:12 22:14 23:1 23:3,17,17,19,20 23:24 24:1,21	25:5 26:13 27:8 27:12,18,23 38:4 39:13 45:23 47:1 47:10 56:2 61:9 71:5 74:16 75:3,7 86:10 99:9 125:2 125:5 132:11 181:4 196:1,5,14 196:15 198:9 209:20 213:22 214:18 215:19 229:7,9 251:19 260:13,14,19 262:13 277:17,21 285:9 319:15,20 327:17 337:24 338:18,22 339:3,5 339:11 357:4,10 380:11 383:15,20 384:2 388:9,17,22 389:1,3 391:22 393:11 394:10 411:4 422:2 442:1 442:4 443:22 456:17 463:7,12 463:18,21,23 464:3 465:20 480:21 481:9,12 483:13,13,16,17 483:21 484:16 485:4,18,22 486:13 493:20 500:22 523:12,17 524:22 529:4,8 537:6 556:21 571:12 578:10 times 3:8 103:6 172:19 214:10 285:18 328:21 444:7 457:1 459:11 566:13 timing 327:14 328:4 Tinto 455:24 tiny
---	--	--	---	--

316:3,4 tired 336:24 516:6 Tisi 2:9 28:20,21,22 207:19 481:21 482:1,15,21 483:3 544:16 tissue 239:9 263:8 311:8 329:22 331:2 354:14,20 355:5 366:16 367:3 368:14 369:16 370:3,5,11 417:13 465:7 477:3 507:1 tissues 137:10 292:13 355:6 368:21 371:12,19 416:20 417:4 466:21,22 513:3 titanium 304:7 305:15 307:13 title 14:14 titled 60:13 flocke@seyfarth.... 4:5 tobacco 170:2 224:2 Toby 537:22 today 13:5,11 16:15 27:23 28:1,8 32:16 33:24 36:17 37:15,17 44:22 50:14,17 53:13 55:3 87:8,23 90:24 113:17 114:6,23 115:4 153:2 161:1,11 162:20 197:2 346:12 380:12	384:24 391:21 392:12 395:21 418:11 443:10,12 443:23 444:15 447:8 480:5 530:24 533:23 548:1 today's 50:10 578:10 toenail 176:14,15 toilet 340:16,19,24 341:5 told 19:7 20:6 29:23 30:3 59:1 212:9 228:21 442:23 top 105:22 188:7,22 203:2 230:3 359:19 368:10 372:4 408:9 430:15 445:1 451:1 452:4 454:18 455:18 457:23 467:2 477:10 506:12 520:19 540:16 552:7 563:24 575:17,20 topic 198:11 383:24 384:1,1 447:15 448:8 topics 150:15 total 418:10 419:6 485:5 totally 83:5 272:17 518:8 touch 134:1 138:15 tox 44:10 54:18 227:9 toxic 182:24 183:4,8 235:22 236:1	320:18 322:11 533:13 toxicant 263:4 Toxicants 9:8 toxicities 181:10,17 554:4 toxicity 8:19 90:9 166:7 181:15 182:6,10 183:3,10,14,17,21 183:23 184:12 235:21,22,22 262:8,15 417:12 417:13 423:9,19 423:23 424:16 425:8 488:7 514:6 517:13,13 528:12 528:13 529:24 532:18 534:5,12 534:16,23,24 535:14,24 536:5 537:2 553:7 toxicological 202:20,21 490:22 491:17 514:7,19 514:19 553:1,6 toxicologist 137:8 183:13 184:10,21 225:8 228:14 235:13 262:6 294:22 295:9,10 315:19 320:8 334:17 399:18 445:6 514:16 532:14,17 554:7,22 555:1 toxicologists 167:17 toxicology 30:7,10,11 31:3,23 32:13,17 33:17 77:24 149:21 153:12 154:15 165:24 166:1,3 186:2,3 197:24	215:17 220:2 223:4 225:10,17 226:5,9,14,15,16 226:24 227:2,4 230:1 264:6 298:24 299:1 373:3 440:2 491:3 492:2 514:18 533:13 534:7 554:13,19 555:5,9 555:12,13 Trabert 9:12 trace 406:22 407:11 traces 404:18 tract 31:7 170:11 334:10 335:1 371:18 431:12 Trade 185:9 224:3 260:2 260:11 460:21 trained 185:23,24 training 177:5,12,14,15 492:5 transcript 11:13 579:9,19 580:17,19 transcription 104:13,21 310:5 475:8 480:19 481:7 582:7 transcripts 390:8 transformation 470:2 479:12,16 translocated 198:16 translocation 427:15 transparency 81:24 229:6 transparent	71:3 229:11 transport 334:9,24 335:21 340:1 426:5,13,23 465:13,18 transported 468:10,14 transports 340:3 transposed 332:15 travel 240:3 300:13 466:2 466:3,7,14,15 traveled 466:4,16 traveling 240:3 treat 171:19 177:6,8 treated 177:19 516:17,18 treating 177:23 treatment 233:9 575:19,21 treats 356:7 514:10 tremolite 179:24 182:9,16,22 183:9 248:9 406:21 407:11 451:17 trial 16:7,9 71:16 trigger 370:23 371:5 triggering 271:13 trivalent 293:11 321:13 true 27:14 114:20 293:9 364:10 445:13,14 473:9 516:24 518:14,18,23 519:6,12,14 554:5
--	--	--	--	---

557:6 579:6	28:16 29:3 30:12	ultimately	50:1,3 74:22,23	upper
truthful	44:23 57:20 81:8	25:20,23 26:18	395:2	431:12 467:20
71:3,14	84:24 88:24 89:14	ultra	undertaken	upregulate
try	103:15 107:12	429:13,19	502:12 503:19	326:5
232:9 254:24	108:15 129:8,9	unable	unethical	upregulation
327:19 329:1	172:20 176:18	366:8 420:19 421:1	518:8 519:2,22	296:11 475:11,23
442:21	249:21 264:8,16	unacceptable	559:19 560:1,3,16	476:11
trying	325:1,2,3,17	512:10	560:17	uptake
84:12 212:14 346:6	327:7,9,24 330:22	unacknowledged	unfair	103:24
424:4 431:10	413:8 456:4	81:1,5	147:20	upward
454:22 455:14	482:13 499:2	uncertain	unfortunately	371:18,18
463:6,9,13 485:1	534:22 540:16	400:5,21,22	328:6,21	urban
516:10	546:2 571:18	unclear	Union	459:10
Tube	two-prong	146:13 401:8,20	4:11 555:12	use
8:6	327:5	455:6 508:19	unique	6:10,16 9:15 60:15
tuberculosis	two-thirds	uncomfortable	104:18,24 305:3	62:17 68:20 73:1
329:5	49:14 472:9 498:19	124:19	465:11	76:3 77:1,22
tubes	type	uncommon	unit	96:14,15 97:1,9
371:15 499:16	193:7 310:23	377:10	110:23	101:18 102:11
TUCKER	324:16 328:17	underlying	United	105:19 111:17
4:7	376:6 417:23	194:12 201:1	1:1 120:8 496:23	113:21 115:1
tumor	425:14 470:11	306:22,23	498:13 540:20	116:4 117:11,12
119:11 153:14	519:20	underpinning	universally	117:21 118:19
192:5 298:19	types	217:23	241:6	121:4 127:1,13
326:20 327:1	192:3 193:6 194:21	understand	university	128:7,10,18 130:9
360:5 365:14	325:14 326:16	66:2 70:6,17 71:6	14:11,15 15:8	130:13,18 131:1
470:3 505:4	327:7,8,9,24	71:13,19,24 91:13	29:20,24 32:4	131:10 152:8,14
566:17	328:2 347:21	92:9 105:8 129:18	69:5,16 78:23	152:21 153:5,20
tumors	354:12,13,19	130:1 145:12,12	79:17 80:6 81:17	154:9 155:7,19
153:16 326:9 402:6	379:2 404:19	147:23 152:24	81:21 176:21	156:23 167:3
402:18 543:2,12	472:21 573:1	183:1 192:24	227:14,16,18,19	172:2 173:22
turn	typical	214:13,15,20,21	227:22 228:17,18	181:4 183:7
79:3 271:13 331:24	459:7,9	214:24 215:3	342:2,3	190:16 204:24
332:2 386:24	typically	227:17 234:23	university's	205:9 206:16
398:24 408:5	192:18 463:9	237:6 238:7	81:9	208:13,23 216:3
409:24 411:6		249:18 261:24	unknown	216:21 217:14
421:22 431:15		279:12 291:12	265:19 369:9 370:5	221:2 222:9,22
444:21 476:16	U	335:14 375:1,4	401:21 406:23	224:14 230:7
487:15 496:6	U.S	407:18 422:7	407:12	231:15 232:22
497:15 498:18	77:23 108:13,17	442:16,17 447:7,7	unpublished	233:17 234:6
506:11 507:22	205:13 453:1	463:8 482:11	58:8 202:13 203:6	252:1,13 295:23
511:21 520:18	498:1	520:3 558:23	214:11 447:12	305:12 351:12
549:15 572:9	U.S.A	understanding	448:6,15	363:4 372:20
573:18 575:14	461:15	70:23 438:23	unusual	373:1,5,14 377:10
turned	ubiquitous	466:12 513:22,23	283:15	385:8 400:3,19
450:12	ultimate	514:17 557:22	updated	406:19 407:8
two	207:14	understood	168:20,22,23	410:17 434:11

440:3,5 445:23 469:3 472:17,19 473:16 489:13 493:19 505:18 508:7 509:10 515:6,15 518:10 519:23 520:6 523:11 538:23 542:13,15 548:16 560:1 564:21 565:17 570:19 575:18	variant 479:15 various 54:17 136:21 181:10,11,18 276:22 vary 181:10,17 Venter 197:12 336:11 502:22 verbally 167:5 verbatim 97:9 103:7 116:1 121:22 verify 276:8 375:7 412:24 Vermont 187:22 versus 305:4 385:22 433:8 433:15 434:22 Vertel 218:6 viability 484:23 viable 485:5 video 13:7 videographer 13:1,3 75:2,6 125:2 125:5 195:24 196:4 250:24 277:17,20 319:14 319:19 338:18,22 383:15,19 442:1,4 463:23 464:3 485:18,21 495:23 523:12,16 529:4,8 578:8 VIDEOTAPE 4:15 Videotaped 1:13 view	432:21 viewpoints 400:23 viral 325:21 virtually 94:21 virtue 501:2 visible 357:1 vitae 7:22 380:9 vitro 137:8 138:8 145:6 197:8 202:22 295:3 297:1 368:2 373:1 377:1,11 378:13 480:17 481:6 vivo 137:8,9 138:8 140:23 145:8 202:22 295:3 314:18 366:19 367:5 368:1 377:18 378:16,18 378:19 439:4,15 440:22 volume 368:19 439:3,14 vulnerabilities 255:10 vulnerability 266:3 vulnerable 330:18 331:1	411:1 walls 258:2 want 74:8 99:10 196:9 205:4 217:6 222:19 234:22 235:12 322:8 336:6 338:8 350:14 372:5 376:21 409:21 418:24 427:4,4 479:24 482:19,24 483:1 484:1 485:2 502:15 537:19 544:15,18 wanted 21:16 140:9 238:22 350:16 wants 570:13 Warheit 437:5,23 warrant 406:23 407:13 warranted 575:2 Washington 4:4 wasn't 47:4 197:20 225:18 225:20,22 283:24 waste 459:14 wasted 339:10 water 261:17,19 262:3 267:17 461:9,13 461:17,20,24 way 16:12 39:20 75:22 77:6 83:13 86:17 88:5 94:4 116:14 126:2 136:2 162:4 176:4 192:22 200:19 204:7,8	235:5 249:13 252:3 286:7 295:21 336:5 426:4,6,13 427:1 428:12,13,19 441:2 472:10 481:22 495:4 496:5 498:20 530:8 557:4 566:7 ways 79:24 80:3 237:6 320:18 we'll 62:19 74:19,20 317:5,5,13 318:23 337:1 338:15,16 537:11 we're 18:2 32:6 99:18 125:10 196:8 221:6 230:13 265:14,15 266:5 276:15 298:3 317:6,17 318:7 319:10,11 334:3,4 336:19,20 337:9 337:11,13,16 338:24 339:1,13 339:21 364:17 370:19 482:2 483:6,6 484:3,7,7 we've 73:20 74:11 94:11 103:3,5 114:21 195:19 277:11 290:3 337:19 444:14 492:11 weak 420:6 421:12,14 435:8 564:6,6,16 564:17 website 79:1 81:13 107:16 107:18 websites 54:18 weeks
users 352:10 478:23 uses 119:17 237:15 351:13 441:4 548:7 559:24 usually 91:7 96:15 215:18 349:18 uterine 167:20				
V				
V 2:9 vagina 499:8 vaginal 334:4 336:15 346:18 371:9,10 371:12 vaginally 333:13 vague 159:22 188:4,20 validating 503:10 validation 547:21 548:4 value 137:12,15 Van 452:12 vapors 185:16				
			W	
		W 4:8 Wacker 4:8 wait 544:5 556:7 570:11 570:13 waiting		

44:23 57:20	witness	195:3,6,11,14,17	355:16 360:18	540:5 541:17
249:22 576:8,12	12:5 13:17 15:1	196:16 198:4	361:8 362:16	545:16 547:10,17
Wehner	20:4,16 21:12	200:16 206:21	363:1,21 365:2,17	548:9 550:5,16
63:23	23:8,18 24:2,18	209:4,12 210:10	367:10 368:24	552:14 553:15
weigh	26:7,12 28:21	212:13 214:4	369:21 370:15	556:8 557:9,13
433:7,13	29:1 33:1 38:18	217:19 218:21	372:19 376:19	559:22 560:11
weighed	38:21 41:14 46:3	219:11 221:6	377:22 378:12,18	562:14 564:13
136:21	46:19 47:14 48:1	223:2 224:20	378:24 379:16	565:3,13 566:22
weighing	52:8 53:2 56:10	225:20,23 227:8	381:1 382:11	567:21 569:24
249:7	56:13,15 67:4,21	228:3,22 231:18	386:21 387:23	570:10 573:9
weight	68:9,20 70:5,22	233:1,4 234:9	390:17 392:5,18	576:11 577:17
249:3 397:12	71:12,24 74:21	235:9,11 238:13	395:11 396:20	579:5,6,8 580:1
416:11,11 433:5	78:10,14 82:20	240:1,17 241:21	399:12 400:10	witnesses
weighted	83:4 85:7,20	242:15 243:9	402:24 403:11	35:4 447:4,9,13
416:14	89:21 90:19 91:6	244:16 245:7	406:1 408:24	woman
weights	91:22 92:8 94:6	246:11 249:1,17	409:17 412:18	11:16 265:23,24
503:20	94:16 96:14,23	251:2,11 256:1	413:11 416:1,23	266:2 314:17
Weiner's	97:14 98:7,21	257:6 258:15	417:17 418:16,24	352:24 353:18
197:15,16,16	99:24 100:14	259:9 260:8	423:5 424:1,4,16	358:22 360:3
welcome	101:1,10,24	262:11,24 263:19	424:20 428:23	women
161:7,18 544:19	103:18 105:13	266:14 267:5,16	434:18 436:14	284:19 295:15
welding	106:3 108:3,12	267:22 268:1,11	438:14 439:7,20	345:7,16 346:1
123:18	109:2,15 110:5,8	269:8 270:6 271:2	440:13 441:23	357:24 361:23
well-done	112:16 113:24	271:24 274:9,16	446:7 447:18	362:3,9,11,22
435:19,21	114:16 115:7	274:24 280:6,10	448:7,16 450:1	367:5,6,12,23,24
well-established	116:8 120:5 122:7	281:9 282:7 283:7	451:23 453:16,24	368:9 371:23
182:15 217:3	122:10 124:16,22	284:15 286:12	457:10 460:8	372:1,15,20
489:21	127:6 134:5,22	287:22 289:18	462:5,24 465:17	373:21 377:18
well-known	135:19 137:23	291:8 293:2,22	473:7 474:18	378:9 381:6,9
182:14 217:3	138:14,19 139:9	294:20 296:2,21	476:8 477:17	439:10 469:3
228:13 272:19	140:1,12 142:17	299:17,20 300:24	478:10 479:3,11	477:14 478:6,14
well-publicized	143:15 144:16	303:2 304:21	483:4 484:13	478:20 479:8,20
489:20	145:4,17 146:13	305:7 306:8,18,20	486:12 487:9	499:19 541:10
went	147:2,22 148:21	307:9 310:17	488:12 489:4,18	556:15 558:3,12
33:8 54:16 374:4	152:11 153:8	311:21 312:23	490:10 491:2,14	558:21 559:12
390:6	154:12 155:23	313:12 314:22	491:21 493:10	wood
white	158:1 159:24	317:10,16 318:18	494:12 495:19	173:2,2,3,22
158:4	163:2 166:23	318:21 319:2	498:5 500:4	word
withdraw	168:14 170:14	321:8 322:3 323:5	501:18 503:9	30:23 41:5,8,10
161:20 209:21	172:5 173:17	323:17 324:14	504:4,19 505:10	93:16,16 105:19
226:1 236:4	174:2,18 175:19	329:14 330:6	506:5,22 511:19	105:19 106:18,18
287:14 316:18	179:5 180:14	334:14 335:14	516:2 517:8	107:23,23 113:4,4
334:20 411:3	181:14,21 184:4	336:7 337:3 340:7	524:16 526:14	113:18,18 114:7,7
withdrawn	184:18 185:7	340:23 341:15	527:9,22 528:20	152:3 153:9 183:8
319:8	187:6 188:5,21	342:15 346:5	529:17 531:11,19	187:17 222:12
withdrew	189:8,23 191:1,14	348:22 351:12	533:17 534:20	235:13 412:1
319:4	192:13 193:5	352:13 353:12	535:17 538:20	532:15

wording 89:16 489:1	260:1,11 460:21	x-ray 292:11	7:23 13:12,19 14:2,8,9 16:24	Zelikoff-24 8:9
words 39:4 67:15 75:20 80:17,22 87:23,24 88:4 90:16 91:10 91:12,17,18,19 92:2,4,4,11,15,17 94:11 95:12,21 96:3,10,19 105:9 114:9 120:15 121:5 135:7,10 152:1,4 304:2 343:4 394:9 426:11 546:24	wouldn't 113:20,21 147:12 488:24 497:10,15 520:18 write 63:6 75:23 76:13 113:15 114:5,22 115:3 133:13 333:11 528:8 535:4,9,10 writing 27:16 44:5 62:14 204:23 283:8,9 284:4 414:13 447:15 448:9 writings 448:13 written 39:20 76:22 105:17 113:1 133:8,15,19 150:13 159:7,17 160:14 161:4,14 161:24 162:9,14 162:22 163:20 164:8,18,20 226:17 391:11 424:17 459:16 471:8 499:22 501:10 534:6,11 534:15 535:12,17 535:23 536:4 537:1,18 546:23 wrong 231:21 572:6 wrote 91:10 163:5 249:10 249:19 537:21 Wu 10:10 469:13 471:22,24 472:3,9 473:15,19	XRD 251:24 252:7,11 XRF 292:11 <hr/> Y <hr/> y'all 463:14 yeah 35:5 75:1 147:17 175:23 183:11 277:16 387:13 402:18 450:24 482:15 487:18 504:20 507:14 508:8 516:5 573:9 573:15 year 21:18 34:3 152:15 387:19 408:3 years 112:7 113:8 133:21 173:13 187:21 228:11 242:12,17 258:3,21 260:17 320:9 358:13,13 358:17,19 451:9 452:21 472:18 492:3 yellow 208:9 York 2:19 3:8,8 14:11,15 15:8 29:20,24 32:4 69:4 80:6 173:7 227:22 228:18 259:23 260:13,24 290:2 342:3 <hr/> Z <hr/> Zambelli 10:12 Zelikoff 1:13 5:4,16,18 6:6	18:1 50:8,22 51:7 54:1 75:10 87:5 95:16 126:8 285:17 319:23 339:6,18,21 383:23 442:10 444:11 484:12 486:4 523:23 544:6 573:19 576:19 579:8 582:16 Zelikoff's 35:20 125:14 Zelikoff-1 5:15 16:22 Zelikoff-10 6:14 60:9 Zelikoff-11 6:19 62:22 Zelikoff-12 6:21 78:18 Zelikoff-13 6:22 83:23 Zelikoff-14 7:6 88:12 Zelikoff-15 7:7 92:23 Zelikoff-16 7:9 102:19 Zelikoff-17 7:12 106:11 Zelikoff-18 7:14 115:15 Zelikoff-19 7:16 119:20 Zelikoff-2 5:17 35:17 Zelikoff-20 7:18 118:2 Zelikoff-21 7:20 121:16 Zelikoff-22 7:22 175:12 Zelikoff-23 8:6 393:8	Zelikoff-25 8:10 125:9 Zelikoff-26 8:12 Zelikoff-27 8:15 Zelikoff-28 8:17 Zelikoff-29 8:20 Zelikoff-3 5:19 36:23 Zelikoff-30 9:6 Zelikoff-31 9:9 Zelikoff-32 9:11 Zelikoff-33 9:13 430:7 Zelikoff-34 9:15 398:22 Zelikoff-35 9:18 405:15 Zelikoff-36 9:20 457:9 Zelikoff-37 9:22 454:11 Zelikoff-38 10:6 469:9 Zelikoff-39 10:8 471:18 Zelikoff-4 5:21 40:6 Zelikoff-40 10:11 480:8 Zelikoff-41 10:13 Zelikoff-42 10:14 Zelikoff-43 10:17 Zelikoff-44 10:19 Zelikoff-45
work 15:7 16:17 17:6,23 19:13,23 22:15 29:7,21 34:15 47:6 64:3,23 69:15 79:18 80:9 81:2,6 82:3,10,13 82:24 86:9,16 112:7 113:8 164:6 178:10 185:8,10 185:15 186:23 202:5 203:16 251:21 254:23 274:18 422:11 435:23 487:2 worked 169:22 252:8 254:10 380:4,7 384:19,21 391:15 391:16 435:21 worker 416:3,13 workers 258:17 working 34:15 251:21 259:18 389:4 392:6 447:6 works 79:6 111:6 235:5 world 111:10 185:9 224:3	X <hr/> X <hr/> X 5:2,11 6:2 7:2 8:2 9:2 10:2 11:2			

10:21	457:20	119	1510	1971
Zelikoff-46	1/15/19	7:16	3:13	502:19
11:6	5:20	12	15th	1972
Zelikoff-47	1:17	40:20 78:21 79:13	37:8,18 500:20	502:22
11:8	196:6	88:16 89:9 91:11	522:13	1976
Zelikoff-48	10	313:5 332:3,4,13	16	10:20 406:7,8
11:10 481:16	60:12,18 208:7,8	333:5 336:8	5:15 26:19 40:19	407:15
Zelikoff-49	210:6 213:10	421:23 425:20	47:2,11 69:19	1977
11:13 549:11	239:2 260:16	487:15 524:3	70:1 83:17 86:1,2	10:17
Zelikoff-5	459:8 460:16	528:1 549:19	101:21 102:13,22	1979
5:23 43:14	461:24 467:19	12/2018	344:2 388:3	10:19 502:23
Zelikoff-50	10.5	6:13	389:13 425:24	1980
11:15 562:23	242:24 428:9	12:22	505:22 572:9,18	193:22
Zelikoff-51	10/18/18	196:2	16-2738	1982
11:17 567:5	11:14	120	1:6	14:19 160:24 162:7
Zelikoff-6	10:11	242:12,17	16th	164:3
6:6 50:6	75:3	121	249:20 395:15	1984
Zelikoff-7	10:26	7:20	500:20 522:12	451:4 453:14 506:9
6:7 53:9	75:8	124	17	506:9
Zelikoff-8	100	116:8	106:14 107:16	1990
6:8 55:10	457:5	125	426:1	10:22 123:21
Zelikoff-9	10036	8:10,12,15,17,20	175	1990s
6:12 57:9	3:8	9:6,9,11	7:22	434:21 521:8,10,11
<hr/>	101	12th	18	1991
0	94:22	40:23	115:18 501:22	410:22 452:22
0.2	102	13	502:13 543:6	453:14 494:20
449:10,16	7:9	83:16 233:5 335:15	544:23,24 551:7	1992
0.3	106	336:14 421:23	1835	435:15
242:23 428:13	7:12	425:21	2:14	1993
07962	11	130	19	153:11 197:24
3:18	63:1 65:18	78:12	119:23 188:15	1996
<hr/>	11.5	135	257:22 434:1	410:24 502:23
1	242:24 428:10	112:18	502:13	507:6
1	11/16/18	14	1900s	1997
1:14 16:18 17:1	5:18	5:5 48:12,22 88:15	188:15	502:21
27:1 79:15,16	11:11	425:24 429:22	19103	1A
85:10,12 120:7	125:3	430:16 437:11	2:15	316:16 511:5
217:1 256:7 332:8	11:23	521:18,24 549:19	1960	518:10
381:11 386:16	125:6	15	218:5	<hr/>
416:7 417:9 429:7	115	36:19 37:14 93:2,8	1960s	2
429:14,21 558:7	7:14	93:15 173:13	521:7	2
582:6	117	277:12 425:24	1961	35:19 75:16,18
1,000	484:24	485:6 505:21	502:21	79:15 85:10,12
459:10	11747	523:6	1962	118:22 126:15,17
1.3	2:19	150	201:17	127:5 128:24
564:8	118	90:3 313:16 425:2	1970s	199:13,16 202:9
1.5	7:18 485:8	528:2	257:22	203:1 217:2 332:8

403:21 425:14 444:22 454:17 484:22 485:6,7 496:6 552:7 2,000 48:23 49:1,5 2:27 277:18 2:45 277:22 20 84:16,20 117:17,23 118:4,6,9,9,21 119:2 347:6 359:6 359:19 388:17,19 389:2 502:13 582:20 20004 4:4 2001 260:18 2004 449:6,13 2006 10:18 2007 11:6 502:23 562:16 563:2,16 2008 469:16 471:8 577:13 2009 11:7,8 413:24 414:23 454:20 469:13 472:4 502:4,5 506:9 572:11,15 577:15 577:17,19,20,22 2010 10:11,15 245:14 435:6 453:13 454:21 2011 10:16,21 2012 11:9 40:20 246:16 457:6 458:14	512:10 2013 10:12 2014 434:1 437:11 454:4 497:3,21 2015 512:10 2017 18:11,15,20,21 33:24 93:12 247:7 250:18 386:2 2018 17:7 26:19 36:15 40:19,20 47:2,11 48:12,19,22 69:19 70:1 83:17 168:21 176:6 206:4 229:8 232:14 247:8 249:10 250:18 387:16 388:3,5,12 388:16,17,19 389:1,2,12,13,17 398:19 446:24 502:8 503:17 521:18,24 522:5 2019 1:10 13:5 36:19 37:8,14 168:22 523:6 579:15 202 4:5 20th 388:13 21 1:10 121:19,19 359:6,20 472:1 473:23,24 506:12 506:18 543:18 545:4,5,6,22,23 551:7 212 3:9 41:4 215 2:15 21st 13:5 37:16,17,19	22 125:24 175:8,9 224-1133 2:20 225 457:19,20,23 460:12 229 461:2 23 393:4,11,20 474:5 480:10 579:15 233 4:8 234 2:4 24 17:7 125:24 363:9 363:13 451:15 25 17:16 125:12,22 126:5 132:16 368:10 379:7,19 538:2,9 2555 3:3 26 5:17,21 83:18 206:6 469:19 480:14 267-0058 3:18 269-2343 2:5 27 93:11 248:8 454:20 476:18 28 412:5,6 454:20 493:23 2900 2:14 2B 320:19,19 548:16 548:18 <hr/> 3 <hr/>	3 36:20 37:23 118:22 202:18 203:2 230:3,12,14 332:9 436:3,13 437:20 445:1 455:16 476:19,21,22,23 476:24 477:1 497:15 522:21,22 522:22 539:18 540:17 3:21 319:15 3:23 319:21 3:39 338:19 30 17:16 28:5 112:7 112:19 113:8 206:5,6,6 248:7 260:16 320:9 452:21 459:23 580:16 300 137:1 428:14 462:1 305 2:19 30th 33:21 312 4:9 316 2:9 32 38:22 39:4 125:9 125:13,23 126:6 32502 2:10 33 430:4 497:4,16 498:18 539:15 334 2:5 34 398:16 507:19 570:3,18	35 5:17 133:21 228:11 405:11 406:15 350 3:17 16:3 36 5:19 451:9,10 457:6 36103 2:4 37 454:8 495:13,15 496:4,7 38 469:12 39 471:21 391.0183 3:14 393 8:6 398 9:15 <hr/> 4 <hr/> 4 3:8 40:9 104:5,9 117:15 118:22 237:21 321:17 332:11 387:16 388:12,16 389:1 389:12,17 403:22 431:15 433:9,16 433:22 4/1/14 9:14 4:04 338:23 4:48 383:16 40 5:21 260:17 480:1 562:18 400 2:19 405 9:18
--	---	--	---	---

43		512:5	78701	92
5:23		6,000	3:13	7:7
430	5	459:23		927
9:13	18:15 43:17,19,20	6:00	8	567:8 573:21,24
435-7001	45:3,10 46:16	442:2	8	574:12 577:2
2:11	84:21 253:12,14	6:25	55:5 57:1 60:24	930
442	321:17 403:20	442:5	61:1 248:6 266:17	573:20
5:6	498:19 541:4	6:45	278:18 446:14	973
45	575:15,20	463:24	450:19,23 520:18	3:18
399:22 507:23,24	5:08	6:46	552:8 575:12,13	975
509:4	383:21	464:4	8:10	4:4
450	50	60	523:13	985.9177
16:9	6:6 28:5 99:7	6:14	8:16	2:15
454	242:21 428:12	600	523:18	
9:22	563:2	2:10	8:21	
457	500	60606	529:5,9	
9:20	104:14	4:9	80s	
463-2400	51	60s	257:22	
4:5	567:2 573:15,16	216:10	816	
464	512	62	3:4,13	
5:5	3:14	6:19	83	
469	523	624-6307	6:22	
10:6	5:5	4:9	877.370.3377	
47	53	631	1:20	
412:5,5 480:2,8	6:7	2:20	88	
494:4	549	64108	7:6	
471	11:13	3:4	888	
10:8	55	6950	2:11	
474-6550	6:8	4:8		
3:4	562		9	
48	11:15		9	
480:2 481:18	567	7	57:12 60:21 208:1	
515:14	11:17	53:12,14 409:24	392:1 419:23	
480	57	411:7 417:8 449:2	451:15 500:12	
10:11,13,14,17,19	6:12	449:6 451:1 452:4	542:18 572:7	
10:21 11:6,8	571	452:11 521:14	9/11	
481	5:7	552:7	260:17,22	
11:10	576	7:07	9/12	
482	5:5	485:19	64:15	
549:16,17	583	7:30	9/13/2018	
486	582:6	485:23	64:15	
5:7		735-2453	9:03	
49	6	3:9	578:11,14	
481:18 549:14	6	75	9:11	
4th	50:9 248:4 266:17	485:7	1:15 13:6	
388:19	332:13,14 408:6	78	917.591.5672	
	450:6,14,17,18,19	6:21	1:20	
	450:23 511:21			

Exhibit 103

ON TALC TRANSLOCATION FROM THE VAGINA TO THE OVIDUCTS AND BEYOND*

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Abstract—The objective of this study was to investigate whether multiple vaginal depositions of neutron-activated talc in the cynomolgus monkey result in the translocation of this material to the uterus and beyond. Within a 45-day period, six monkeys received 30 applications of 125 mg neutron-activated talc, suspended in 0.3 ml physiological saline solution containing 1% carboxymethyl cellulose as a suspending agent. The suspension was deposited in the posterior vaginal fornix of the sedated monkeys. Two days after the final talc application, the animals were anaesthetized. Abdominal lavage was performed and the lavage fluid collected for γ -ray analysis. Also collected for γ -ray analysis were the following tissues/organs: ovaries, oviducts, uterus, and vagina with cervix. Six untreated control monkeys underwent the same procedures. The radioisotopes ^{45}Sc , ^{60}Co , ^{59}Fe and ^{51}Cr in the activated talc served as tracers. Only the samples containing vagina and cervix from the dosed monkeys contained varying quantities of talc. This demonstrates that no measurable quantities of talc, deposited by multiple applications in the vaginal fornix of the cynomolgus monkey, translocated to the uterus or beyond.

INTRODUCTION

Ever since Egli & Newton (1961) reported the apparent translocation of carbon black from the vagina to the oviducts in two of three female patients, increasing interest has focused on the question of whether particles can, indeed, migrate from the vagina to the oviducts and beyond. This question received additional attention following the observations of Henderson, Joslin, Turnbull & Griffiths (1971), who reported talc particles in 10 of 13 ovarian tumours in humans. These findings imply a translocation of talc from the vagina to the ovaries. Talc can be deposited in the vagina by dusting the perineum, or from sanitary napkins, diaphragms or condoms.

The results of several subsequent studies (DeBoer, 1971; Gardner, Fink & Hassler, 1980; Hassler, Gardner, Emmerling *et al.* 1974; Venter & Itteralde, 1979) were, in part, ambiguous (see under Discussion). Whether "insoluble", inanimate particles, deposited in the vagina, can penetrate the cervical barrier and migrate "upstream" against the ciliary beat of the oviductal epithelium without the aid of manipulative forces remained to be conclusively demonstrated.

In a pilot study (Wehner, Hall, Weller *et al.* 1985) prior to the more definitive study described in this paper, we first attempted to reproduce the results of Egli & Newton (1961) in the cynomolgus monkey

(*Macaca fascicularis*), following their procedures as closely as practical. While our results suggested that no translocation of bone black particles took place, translocation could not be ruled out with certainty in the absence of quantitative analyses. Results of a quantitative experiment in the monkeys, for which we used neutron-activated talc to circumvent the problem of environmental contamination, indicated that no measurable quantities ($> \sim 0.5 \mu\text{g}$) of talc translocated from the deposition site in the vagina to the uterine cavity and beyond (Wehner *et al.* 1985). However, to be more conclusive, our results needed to be reproduced in a larger number of animals following multiple applications.

EXPERIMENTAL

A purified blend of cosmetic talc, supplied by the Cosmetic, Toiletry and Fragrance Association, Inc., and appropriate standards were exposed for 6.5 hr to an estimated neutron fluence of $1.2 \times 10^{17} \text{ n/cm}^2$ in a 1 megawatt TRIGA reactor at Washington State University.

Using the detector efficiency curve generated when the neutron flux was determined, the talc was characterized in terms of disintegrations per minute (dpm) per μg talc (Table 1). Using a United States Geological Survey BHVO standard as a comparative standard, elemental concentrations in the talc sample were determined (Table 2). Counting time for the talc characterization was 20,000 seconds/sample (5.5 hr).

A quantity of neutron-activated talc was suspended in physiological saline solution containing 1% carboxymethyl cellulose (CMC; Sigma Chemical

*This work was performed by Battelle, Pacific Northwest Laboratories for the Cosmetic, Toiletry and Fragrance Association, Inc., Under Contract No. 2311205966.

Table 1. Radionuclide concentrations in talc sample

Radionuclide	Concentration*
¹⁴¹ Ce	0.018 ± 3.2
⁵⁸ Co	0.0839 ± 1.0
⁶⁰ Co	0.297 ± 0.9
⁵¹ Cr	2.29 ± 0.9
⁵⁹ Fe	0.617 ± 0.7
¹⁷⁷ Lu	0.093 ± 9.3
⁵⁴ Mn	0.026 ± 2.1
¹²⁴ Sb	0.0039 ± 11.7
⁴⁶ Sc	0.316 ± 0.7
¹⁶⁹ Yb	0.010 ± 12
⁶⁵ Zn	0.015 ± 6.9

*Given as dpm/μg talc ± 1σ counting error (error expressed as a percentage).

Table 2. Elemental concentration in the talc sample

Element	Concentration*	USGS BHVO	
		Counted*	Stated standard
Scandium	1.02 ± 0.4	30.0 ± 0.3	30
Chromium	117 ± 0.8	290 ± 1.0	290
Iron	9780 ± 0.6	85200 ± 0.6	85100
Cobalt	20.7 ± 0.8	45.0 ± 1.0	45
Nickel	394 ± 20	120 ± 28	120
Zinc	15 ± 10	102 ± 10	102
Antimony	0.015 ± 7.9	0.17 ± 7.2	0.17
Cerium	3.97 ± 3.3	40.0 ± 3.1	40
Europium	0.084 ± 4.9	2.1 ± 3.4	2.1
Terbium	0.087 ± 18	1.0 ± 16	1.0
Lutetium	0.037 ± 12	0.32 ± 12	0.32
Hafnium	0.19 ± 7.7	4.10 ± 4.4	4.1
Tantalum	0.071 ± 13	1.08 ± 12	1.08
Thorium	0.35 ± 13	1.0 ± 18	1.0
Ytterbium	0.28 ± 14	2.1 ± 16	2.1

USGS BHVO = United States Geological Survey
*Given as ppm ± 1σ counting error (error expressed as a percentage).

Co., St Louis, MO) as a suspending agent so that 0.3 ml of the suspension contained 125 mg talc.

From 12 female exbreeder cynomolgus monkeys, obtained from the Medical Lake Field Station of the Regional Primate Research Center at the University of Washington, six monkeys with the most regular menstrual cycle were selected for dosing with neutron-activated talc for 30 consecutive workdays. Menstrual cycles were determined by inspection of the catch pans under the cages for menstrual blood. The remaining six monkeys served as untreated controls. The monkeys were 4- to 12-yr-old exbreeders (multiparae), ranging in weight from 2.4 to 4.35 kg.

After sedation (25 mg ketamine hydrochloride, intramuscular) each of the six dosed monkeys was placed on her back and restrained by taping hands and tail to a plywood restraining cross. The pelvis was elevated at an angle of about 20 to 25°. The legs were held with the knees bent close to the chest, using a Velcro strap as a restraining mechanism. A nasal speculum was inserted into the vagina and opened to expose the cervix. Each of the six animals received approximately 125 mg neutron-activated talc, suspended in 0.3 ml physiological saline solution containing 1% CMC. The suspension was deposited in the posterior fornix of the vagina, using a 1.0-cm³ Tuberculin syringe with a stainless-steel animal feeding needle (CVD 18 ga. × 0.5 in; Popper & Sons, Inc.,

New Hyde Park, NY). Once a week, 10 units of oxytocin were injected intramuscularly at the same time as the talc deposition. Following dosing, the animals were maintained in the restrained position for approximately 20 min and then returned to their cages.

Two days after the thirtieth talc deposition, the six dosed animals were anaesthetized by intramuscular injection of 100 mg (1 ml) ketamine hydrochloride and weighed. The abdominal area was shaved. To recover talc particles that may have translocated to the peritoneal cavity, peritoneal lavage was performed by injecting approximately 135 ml physiological saline solution into the peritoneal cavity, followed by brief gentle massage to distribute the lavage fluid and wash off any talc particles which might have adhered to the serous membranes of the peritoneal cavity. The peritoneal cavity was then opened by incision and the lavage fluid collected by aspiration with a syringe for γ-ray analysis. The lavage was repeated once through the abdominal incision.

Precautions to avoid contamination and cross-contamination of samples included the use of clean instruments for each sample to be collected and starting with the collection of samples least likely to contain translocated talc, i.e. lavage fluid and ovaries. Both ovaries were collected in one polyethylene vial for γ-ray analysis. Both oviducts were similarly collected and sectioned into three parts of approximately equal length for γ-ray analysis, followed by collection of the body of the uterus. Because deposition of talc in the area of the vaginal fornix might also result in the direct mechanical deposition (rather than physiological translocation) of talc in the uterine cervix, the cervix of the uterus was dissected from the body and analysed together with the vagina. Thus, the following seven samples from each of the animals were analysed: peritoneal lavage fluid (Sample 1); right and left ovaries, combined (Sample 2); three sections of right and left oviducts (right and left corresponding sections combined in Samples 3a, 3b and 3c; Sample 3a contained the two oviduct sections adjacent to the ovaries, Sample 3c those adjacent to the uterus); body of the uterus (Sample 4); and vagina with cervix (Sample 5). Treated and control animals were then killed by iv injection of a barbiturate-based solution.

Tissue samples were collected for γ-ray analysis in labelled, acid-cleaned polyethylene vials, dried and heat-sealed before analysis, using an infra-red heat lamp. Peritoneal lavage samples were evaporated to approximately 2.5 ml of liquid. Bulk talc standards and liquid standards of iron, cobalt, chromium and scandium in geometrical arrangements similar to those of the samples were analysed on each detector system used for sample analysis. Counting times ranged from 1000 to 2000 min, depending on the activity in the samples.

The samples were counted on two different detector systems. The first was a unique high-resolution, low-background intrinsic germanium (IG), or a lithium-drifted germanium [Ge(Li)] detector with either a NaI(Tl) or plastic phosphor anti-coincidence shield. This system separates the γ-rays emitted into one of two spectral regions. Those γ-rays detected

simultaneously in both the IG [or Ge(Li)] detector and the NaI(Tl)—or plastic phosphor—anti-coincidence shield are stored in the second spectral region. The γ -rays detected only by the IG [or Ge(Li)] detector are stored in the first spectral region. The great advantage of this system is the reduction of the Compton background by one order of magnitude in the non-coincident portion of the spectrum, resulting in greater sensitivity. The second system was a low-level, ultra-low background NaI(Tl) γ - γ coincidence multi-parameter detector system. This combination provides unmatched sensitivities for the detection of very low-level radioisotope activities. The anti-coincidence system preferentially detects non-coincident γ -rays (^{59}Fe , ^{51}Cr) whereas the multi-parameter system is designed to preferentially detect coincident γ -rays (^{46}Sc , ^{60}Co). Because of the time elapsed from the irradiation of the talc and the decay of the relatively short-lived radioisotopes ^{51}Cr and ^{59}Fe ($t_{1/2} = 27.7$ and 44.5 days, respectively), two anti-coincidence detector systems were used to expedite γ -ray analysis. The signals were fed through the appropriate electronics to a 4096-channel analyser that was interfaced to a PDP 11/44 computer for data storage and subsequent data analysis. As mentioned, the second detector system was a NaI(Tl) γ - γ coincidence multi-parameter system. Again, two nearly identical (multi-parameter) systems were used to expedite the counting. The detectors were interfaced via the appropriate electronics to a 4096-channel multi-parameter analyser and the data transferred to magnetic tape. This tape was read into the PDP 11/44 computer for subsequent data analysis. The counting systems were standardized using aliquots of known concentrations of NBS traceable standards obtained from Amersham Corporation (^{60}Co , ^{51}Cr , and ^{59}Fe) and New England Nuclear Corporation (^{46}Sc).

When the infrared heat lamp was turned off, two ovaries were found on the counter next to their sample vials. These ovaries apparently had “popped” out of their vials during the drying process. Without means to determine which ovary was from what animal, these two ovaries were labelled XI and X2 and treated as separate samples.

RESULTS

A γ -ray spectrum of the irradiated talc is shown in Fig. 1. Various isotopes are identified, but the most suitable isotopes for our purposes were ^{46}Sc , ^{51}Cr , ^{59}Fe and ^{60}Co . A typical spectrum from the anti-coincidence detector system for the sample from monkey No. 81-086-5, which had the most direct contact with the deposited talc, namely the vagina with cervix (Sample 5), is shown in Fig. 2. Measurable quantities of ^{46}Sc , ^{51}Cr , ^{59}Fe , and ^{60}Co were found in this sample. The peaks of ^{59}Fe and ^{51}Cr are readily apparent in the non-coincidence portion of the spectrum. A typical spectrum from the body of the uterus (Sample 4) of monkey No. 81-081 is shown in Fig. 3. The γ -rays, associated with the previously mentioned radioisotopes characteristic of talc, are not present. Instead, its spectrum closely resembles the background spectrum shown in Fig. 4, which is from the vagina and cervix (Sample 5) of control

monkey no. 79-280 in which only background radioisotopes were present.

Radioisotope data for ^{46}Sc and ^{60}Co from the multi-parameter system, and ^{59}Fe and ^{51}Cr data from the anti-coincident systems, are combined in Tables 3 and 4 for the experimental and control samples, respectively. Where applicable, a ‘less-than’ value is reported. This value is based on one standard deviation of the background observed in the collected spectrum.

Once the most representative values for the samples had been determined, the results were converted from dpm to μg of talc where applicable. This conversion was based on the radionuclide concentration in the talc, namely: $0.316 \pm 0.7\%$ for ^{46}Sc , $2.29 \pm 0.9\%$ for ^{51}Cr , $0.617 \pm 0.7\%$ for ^{59}Fe , and $0.297 \pm 0.9\%$ dpm per μg of talc for ^{60}Co . The conversion of the observed activity (dpm per sample) to μg of talc per sample was made as follows:

$$M_{\text{talc}} = (A_{\text{net}})_{\text{element}} / (A_{\text{talc}})_{\text{element}}$$

where M_{talc} = mass of talc in μg talc/sample, A_{net} = net decay-corrected activity in dpm/sample, and A_{talc} = decay-corrected activity of talc in dpm/ μg of talc.

The quantities of talc per sample have been reported, where applicable, in Table 3. As expected, measurable quantities of talc were observed in the vagina + cervix sample (Sample 5) from each dosed monkey. Their quantity was estimated using the values for ^{46}Sc and ^{60}Co reported for each sample. The observed quantities of talc for these samples were 77,000, 117,000, 63,000, 470, 18 and 6 μg of talc. These wide variations were most likely due to different phases of the animals’ menstrual cycles at the time of death, with menstrual flow cleansing the vagina of much of the deposited talc. No measurable levels of the activated talc were present in any of the other samples.

DISCUSSION

The oviducts provide a passage from the ovaries and the peritoneal cavity to the uterus and the vagina. This pathway can be travelled by cells in either direction as demonstrated by ova and spermatozoa. Gases and liquids such as radio-opaque contrast material and dyes can also be passed by appropriate manipulation through the cervix into the peritoneal cavity. It is less clear whether or not inanimate particles such as carbon black or talc can translocate of their own accord from the vagina to the oviducts and beyond.

As already mentioned, in two of three cases Egli & Newton (1961) found carbon particles in the liquid with which they flushed the oviducts of three patients half an hour after carbon black deposition in the vagina. Theirs was a non-quantitative study that did not include the examination of liquid or filter blanks as negative controls. In a similar experiment with cynomolgus monkeys, we observed approximately equal quantities of carbon black particles in the flushing liquid as well as in our liquid blanks. In light of our previous findings (Wehner *et al.* 1985), it is possible that Egli and Newton might have observed false positives due to sample contamination.

332

A. P. WEHNER *et al.*

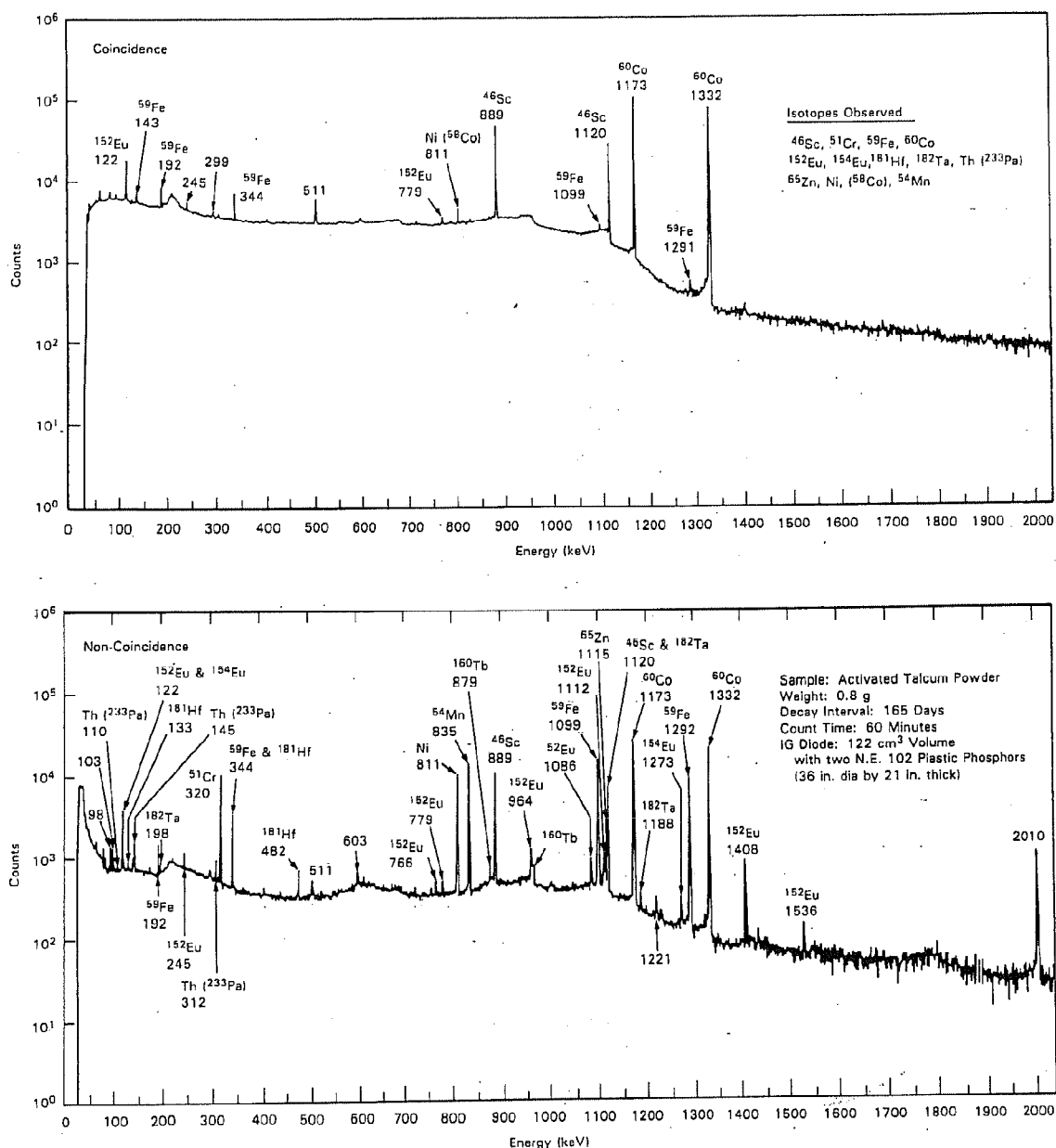


Fig. 1. Gamma-ray spectrum of neutron-activated talc.

Talc translocation from the vagina

333

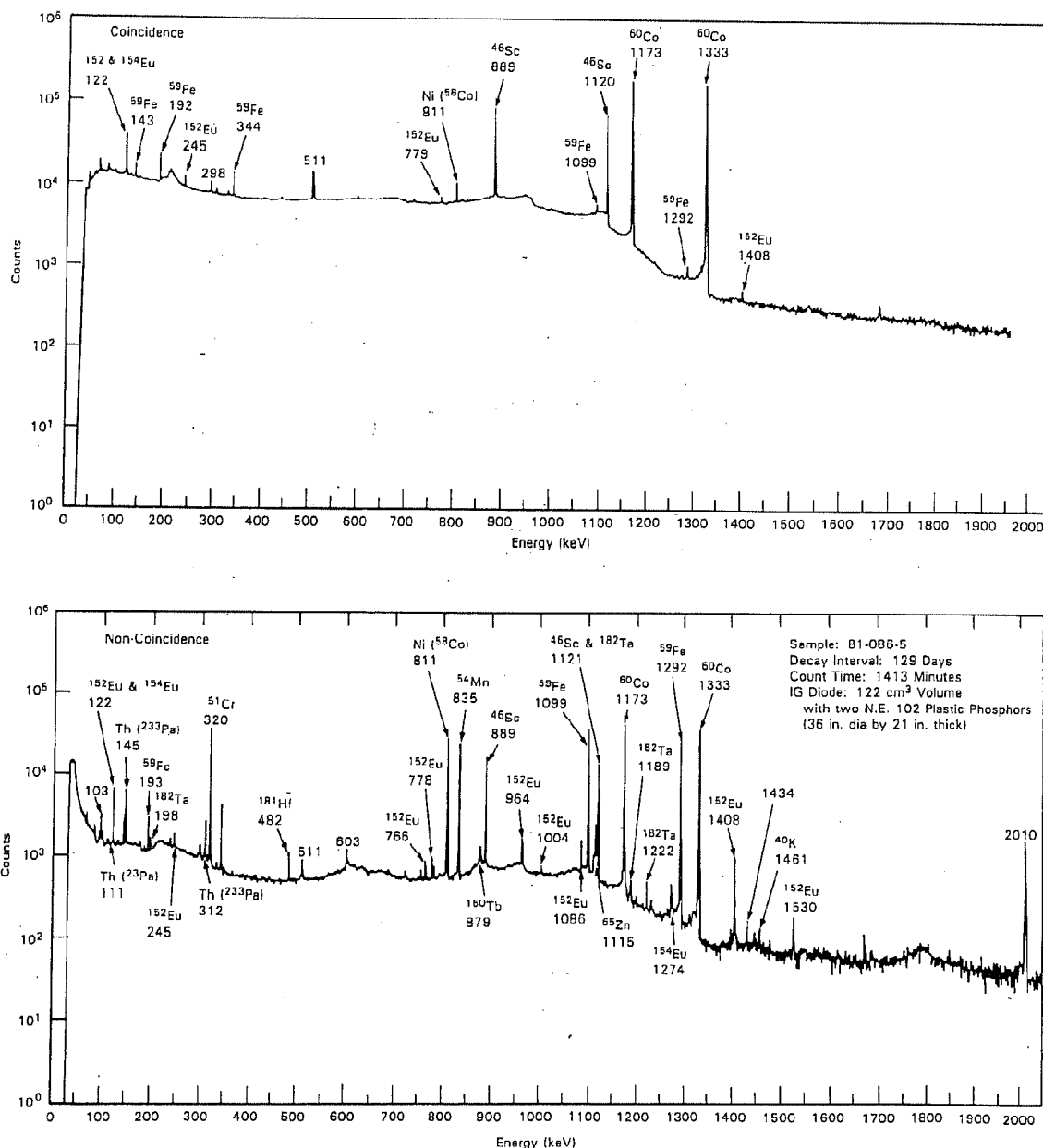


Fig. 2. Gamma-ray spectrum of Sample 5 (vagina + cervix) from monkey 81-086, which had received 30 applications of neutron-activated talc.

334

A. P. WEHNER *et al.*

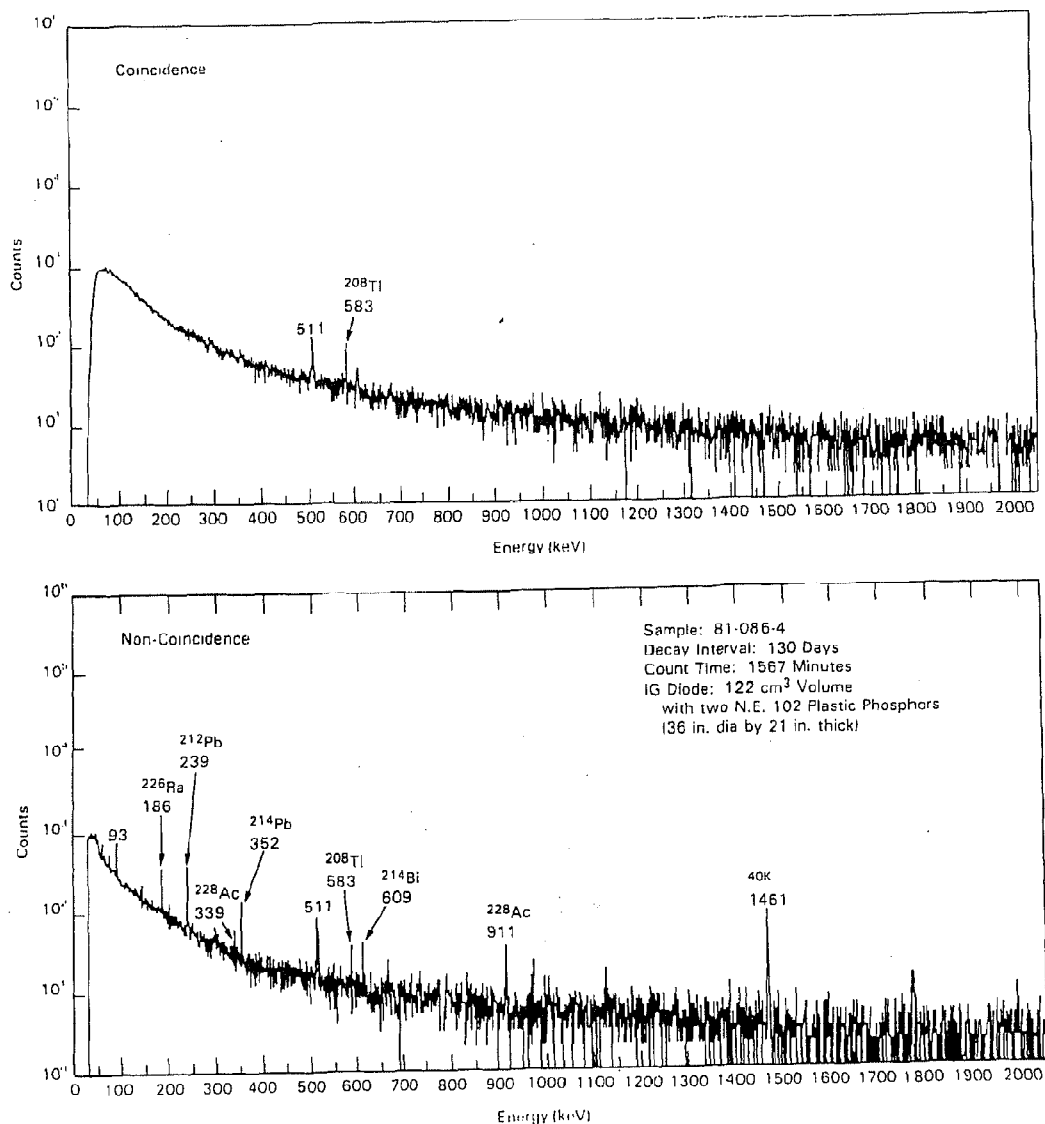


Fig. 3. Gamma-ray spectrum of Sample 4 (body of uterus) from monkey 81-081, which had received 30 applications of neutron-activated talc.

Talc translocation from the vagina

335

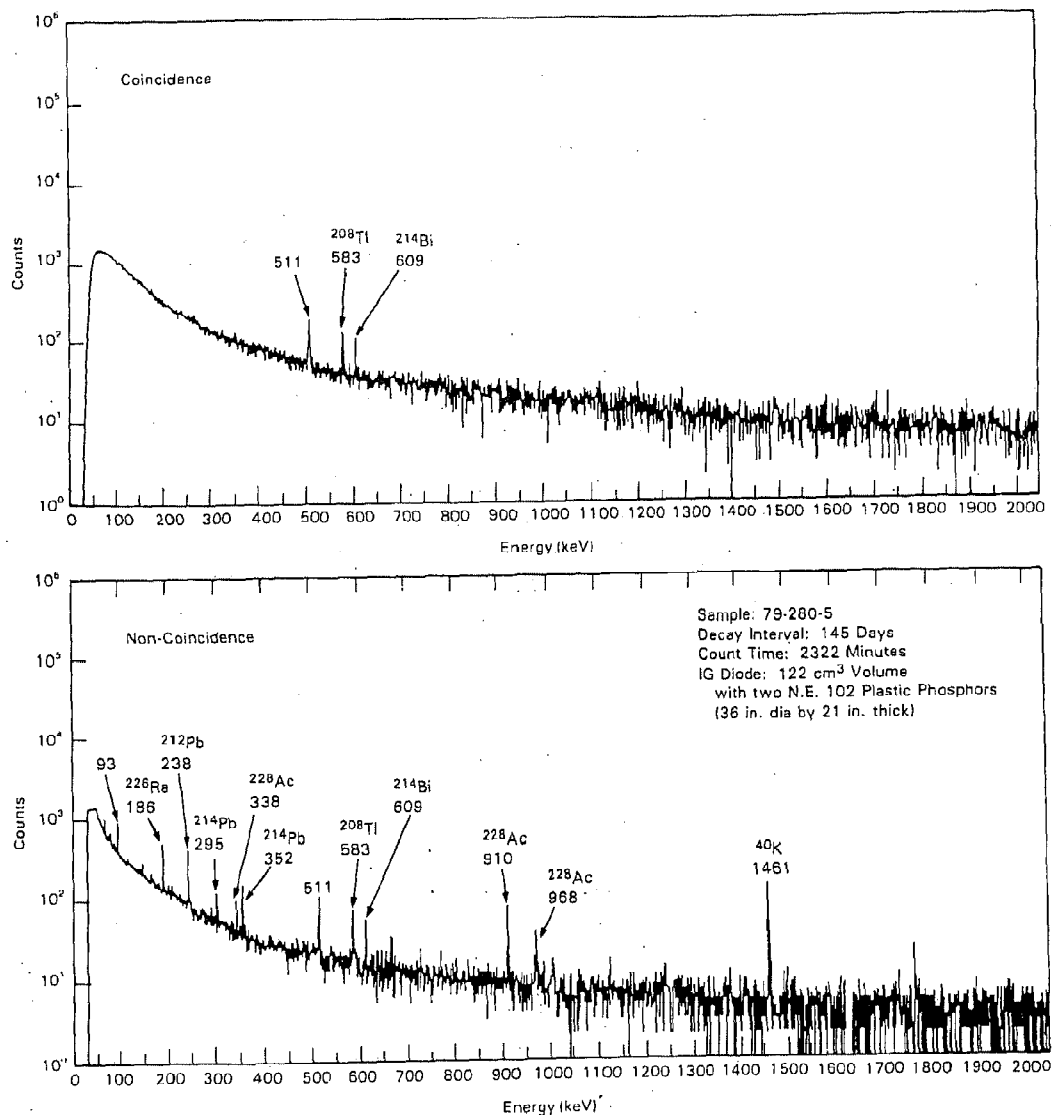


Fig. 4. Gamma-ray spectrum of Sample 5 (vagina + cervix) from control monkey 79-280.

Table 3. Best activity values observed in tissue samples and peritoneal lavage fluid from monkeys treated with neutron-activated talc by vaginal deposition

Monkey and sample numbers*	Activity (mean dpm/sample \pm SD)				
	Scandium	Chromium	Iron	Cobalt	Average
79-252					
1	<0.26	<81	<4.5	0.40 \pm 0.13	
2	1.1 \pm 0.4	<41	<3.1	0.52 \pm 0.15	
3a	<0.24	<60	<3.7	<0.11	
3b	<0.26	<41	<2.7	<0.11	
3c	<0.22	<44	<2.4	<0.11	
4	<0.20	<70	<4.8	<0.11	
5	22000 \pm 200	342600 \pm 500	66900 \pm 1300	25010 \pm 15	
μ g of talc	69600 \pm 600	124500 \pm 500	128700 \pm 800	84210 \pm 50	77000 \pm 10000
79-256					
1	1.0 \pm 0.3	<68	<3.7	<0.13	
2	<0.30	<56	<3.9	<0.12	
3a	<0.28	<63	<3.7	<0.13	
3b	<0.23	<42	<2.9	<0.11	
3c	<0.27	<30	<2.2	<0.11	
4	0.61 \pm 0.25	<60	<4.5	<0.11	
5	34370 \pm 350	382700 \pm 1800	104300 \pm 2000	37330 \pm 50	
μ g of talc	108800 \pm 1100	189100 \pm 600	188000 \pm 1300	125700 \pm 200	120000 \pm 12000
81-086					
1	<0.25	<101	<5.5	<0.11	
2†	<0.29	<68	<3.7	<0.11	
3a	<0.33	<85	<4.8	<0.13	
3b	<0.27	<45	<2.8	<0.13	
3c	<0.26	<37	<2.5	<0.12	
4	<0.18	<70	<3.7	<0.10	
5	18300 \pm 200	241300 \pm 500	47500 \pm 1100	20500 \pm 20	
μ g of talc	57900 \pm 600	101700 \pm 400	99100 \pm 400	69020 \pm 70	63000 \pm 8000
81-092					
1	<0.22	<85	<5.7	<0.11	
2	<0.29	<52	<3.2	<0.11	
3a	<0.31	<74	<3.9	<0.12	
3b	<0.29	<49	<3.3	<0.12	
3c	<0.25	<35	<2.6	<0.10	
4	<0.20	<60	<4.0	<0.11	
5	138 \pm 2	1090 \pm 200	342 \pm 8	150 \pm 1	
μ g of talc	437 \pm 6	560 \pm 40	760 \pm 30	505 \pm 5	470 \pm 50
81-102					
1	<0.26	<93	<6.0	<0.12	
2	<0.24	<57	<3.0	<0.09	
3a	<0.27	<85	<4.1	<0.10	
3b	<0.21	<47	<3.0	<0.11	
3c	<0.23	<35	<2.6	<0.11	
4	<0.19	<55	<4.4	<0.09	
5	8.6 \pm 0.5	<60	13 \pm 5	2.6 \pm 0.2	
μ g of talc	27 \pm 2	<26	21 \pm 8	8.7 \pm 0.7	18 \pm 13
81-166					
1	<0.22	<86	<5.5	<0.10	
2†	<0.33	<83	<4.5	<0.12	
3a	<0.32	<64	<3.5	<0.11	
3b	<0.22	<66	<3.8	<0.11	
3c	<0.23	<41	<3.0	<0.11	
4	<0.23	<70	<4.5	<0.11	
5	2.1 \pm 0.3	<60	<4.7	1.4 \pm 0.1	
μ g of talc	6.6 \pm 1.0	<26	<7.6	4.7 \pm 0.3	5.7 \pm 1.3
X1	<0.31	<45	<3.1	0.27 \pm 0.12	
X2	<0.31	<46	<2.9	<0.10	

†Sample numbers: (1) peritoneal lavage fluid, (2) right and left ovaries combined, (3a, 3b and 3c) three sections of right and left oviducts, (4) body of the uterus, and (5) vagina with cervix.

†One of the two ovaries "popped" out of the vial during the drying process. The activities of the popped out ovaries are listed as X1 and X2.

DeBoer (1972) deposited 0.2 ml of a colloidal carbon black suspension in the uterine cavity, the cervical canal or the vagina of well over 100 patients prior to abdominal surgery. Subsequent macroscopic examination of the oviducts showed rapid translocation of the carbon black deposited in the uterus to the oviducts and beyond in the majority of the cases. Some of the carbon black deposited in the

cervical canal also translocated, but to a lesser extent. However, "from the vagina to the uterus passage of the marker was observed only twice in thirty-seven investigations." DeBoer pointed out that his patients were placed in the Trendelenberg position after the abdomen had been opened and that "in this position, especially under anaesthesia, there is a negative intra-abdominal pressure which may be sufficient to draw

Table 4. Best activity values observed in tissue samples and peritoneal lavage fluid from control monkeys

Monkey and sample numbers*	Activity (dpm/sample)			
	Scandium	Chromium	Iron	Cobalt
77-403				
1	<0.34	<150	<6.1	<0.13
2	<0.35	<87	<4.3	<0.11
3a	3910 ± 20	<86	<4.4	<0.12
3b	<0.33	<64	<3.5	<0.10
3c	<0.27	<79	<3.8	<0.08
4	<0.25	<100	<5.2	<0.09
5	<0.25	<110	<5.6	<0.11
77-091				
1	<0.28	<140	<6.5	<0.10
2	<0.40	<160	<6.3	1.3 ± 0.2
3a	<0.35	<130	<5.6	<0.11
3b	<0.40	<97	<4.2	<0.13
3c	<0.54	<180	<7.4	<0.18
4	<0.27	<100	<5.7	<0.10
5	<0.30	<100	<5.1	<0.13
79-280				
1	<0.26	<140	<6.9	<0.09
2	<0.45	<150	<6.1	<0.14
3a	<0.35	<180	<7.2	<0.11
3b	<0.43	<130	<5.0	<0.14
3c	<0.34	<170	<6.0	<0.11
4	<0.28	<140	<9.1	<0.10
5	<0.22	<87	<4.9	<0.11
80-053				
1	<0.26	<160	<7.7	<0.09
2	<0.25	<180	<8.0	<0.07
3a	<0.30	<190	<8.2	<0.08
3b	<0.43	<180	<7.2	<0.12
3c	<0.43	<160	<7.2	<0.12
4	<0.25	<130	<6.0	<0.09
5	<0.22	<120	<6.7	<0.10
80-087				
1	<0.31	<140	<6.8	0.71 ± 0.13
2	<0.40	<110	<4.8	<0.22
3a	<0.36	<150	<6.1	<0.11
3b	<0.40	<160	<6.7	<0.11
3c	<0.40	<140	<6.6	<0.11
4	<0.21	<130	<6.1	<0.08
5	<0.19	<140	<6.3	<0.08
81-164				
1	<0.38	<160	<6.7	<0.13
2	<0.44	<150	<6.7	<0.11
3a	<0.40	<140	<7.1	<0.11
3b	<0.44	<120	<5.3	<0.12
3c	<0.45	<110	<4.6	<0.12
4	<0.29	<130	<7.9	<0.12
5	<0.29	<110	<5.2	<0.11

*Sample numbers: see Table 3 footnote.

up material from the vagina into the uterus, particularly through a relaxed cervix." He further pointed out that one of these two positive patients was a multipara (six children) with a lacerated cervix. DeBoer's results tend to support our findings by indicating that the cervical canal represents a formidable barrier to the translocation of insoluble inanimate particles from the vagina to the uterus.

Hassler *et al.* (1974) observed transcervical migration of ^{125}I - or ^{85}Sr -labelled microcapsules in rabbits and in some but not all stump-tail monkeys and baboons when the sedated primates were maintained in their supine positions for 1 or 6 hr following dose administration (Gardner *et al.* 1980). When migration did occur, it varied greatly from animal to animal and was on the order of 1% or less during the first 24-hr period following dosing. The difference

between our results and those reported by Gardner *et al.* (1980) may be due to differences in experimental procedures; Gardner *et al.* administered considerably higher doses per application (~1 g), used markedly different materials and a longer sedation time, and maintained the primates much longer in a supine position after dosing.

Venter & Itteralde (1979) placed $^{99\text{m}}\text{Tc}$ -labelled human albumin microspheres (HAM) in the vaginas of patients, followed by surgical removal of uterus, oviducts and ovaries. These tissues/organs were then analysed for $^{99\text{m}}\text{Tc}$, using a scintillation detector. In 9 of 14 cases, radioactivity levels were detected in the oviducts and ovaries; the remaining five cases were negative. All negative cases occurred in patients with proven oviduct changes due to previous infection. While Venter & Itteralde (1979) provide strong suggestive evidence for the translocation of microspheres from the vagina to the oviducts and ovaries, their case is not necessarily conclusive. This statement is based on the observation that the activity from a single radionuclide label measured in organs/tissues does not necessarily prove the presence of particles because radionuclides can leach from the particles (Subramanian, Rhodes, Cooper & Sodd, 1975; Wehner & Wilkerson, 1981; Wehner, Wilkerson, Cannon *et al.* 1977; Wehner, Wilkerson, Mahaffey & Milliman, 1980; Wehner, Wilkerson & Stevens, 1984) as specifically demonstrated for $^{99\text{m}}\text{Tc}$ -labelled HAM (Bolles, Kubiawicz, Evans *et al.* 1971). Misleading conclusions due to the dissociation of radionuclide labels from test materials can be avoided by monitoring for more than one radionuclide. Comparing the ratios of several radionuclides-to-test-material in the bulk material to these ratios in the material deposited in any given tissue will reveal leaching because each radionuclide dissociates at a different rate from a given material (Wehner & Wilkerson, 1981; Wehner *et al.* 1977, 1980 & 1984).

Henderson *et al.* (1971) found talc particles in 10 of 13 ovarian tumours in humans, using an extraction-replication technique (Henderson, 1969). Cramer, Welsh, Scully & Wojciechowski (1982) observed a statistically significant ($P < 0.003$) relationship between epithelial ovarian cancer and talc used for dusting the perineum or sanitary napkins in 215 women. Both of these two clinical studies imply translocation of talc to the ovaries. However, Cramer *et al.* (1982) found no relationship between ovarian cancer and talc exposure from dusting condoms or diaphragms, even though talc, in the latter applications, is deposited close to the cervical os. Hartge, Hoover, Leshner & McGowan (1983) made a similar observation from their epidemiological study. Their data indicated that the use of talc on a diaphragm did not appear to elevate risk and that there was no overall association between talc use and risk of ovarian cancer. Phillips, Young, Hardy & Gangolli (1978) found no translocation of ^3H -labelled talc from the vagina to ovaries in the rabbit.

None of these studies conclusively answers the question of whether or not talc, deposited in the vagina of the human female, translocates to the oviducts and beyond without purposeful manipulation. Our study, using state-of-the-art techniques in the most suitable animal model available, failed to

provide any evidence for such translocation of measurable quantities ($> \sim 0.5 \mu\text{g}$, depending on the radionuclide, detector system and counting time) of talc.

It would, indeed, be difficult to explain such a translocation of "insoluble" inanimate particles. They lack the locomotion of spermatozoa and are unable to respond to chemotactic or physiological stimuli. It is, therefore, reasonable to assume that the behaviour of such particles is largely governed by the laws of physics. These laws would not permit particles to migrate "upstream" against the direction of the beat of the oviduct's ciliary epithelium, even if the particles had managed to somehow breach the cervical barrier and diffuse across the uterine cavity.

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